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BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB.

EDITED BY

DR. G. CARMICHAEL LOW.

VOLUME LII.

SESSION 1931–1932.

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1932.

ALERE FLAMMAM.

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PREFACE.

THE number of attendances at the meetings of the Club during the past Session was well maintained and beat all former records, 405 members, 29 members of the B. O. U., and 124 guests having been present, a total of 558.

Major Stanley S. Flower, the Chairman, gave his annual address at the December Meeting, and divided it into two parts—a Review of the Events of the Year, and a paper on the Longevity of Birds.

The year was also eventful in having a series of interesting communications on a variety of subjects. Rear-Admiral Lynes gave a short account of his 1930–31 tour with Mr. Jack Vincent across Central Africa; Mr. Herbert Stevens an account of a Journey to the Himalaya during the cold season 1930–31; Mr. E. C. Stuart Baker some Experiences in Lapland in 1931 and previous years, the lecture being illustrated by lantern-slides of the country and of various birds, nests, and eggs; Mr. T. H. Harrisson a visit to St. Kilda in 1931; Lt.-Commander R. R. Graham, R.N., a paper, illustrated by lantern-slides, on the part played by the Emarginated Feathers and the Alula in the Flight of Birds; Dr. G. Carmichael Low a lecture on the question of Sex Reversal, illustrated by microscopic preparations of abnormal sex organs; Dr. R. Cushman Murphy a lecture, illustrated by coloured slides, of the Ornithology of the Humboldt Current; and Lord William Percy a film demonstration on the use of the Powder-down Patches in the Bittern.

New forms were described by Rear-Admiral Lynes, Mr. Hugh Whistler, Mr. W. L. Sclater, Lord Rothschild, Hon. M. Hachisuka, Mr. G. M. Mathews, Dr. C. B. Ticehurst, and Mr. D. A. Bannerman. Dr. P. R. Lowe exhibited a bird new to the British list, namely, an example of the Red-headed Bunting, shot in North Ronaldshay, Orkney Islands, by Lt.-Col. Todd.

The Annual Dinner, held in conjunction with the British Ornithologists' Union, was, as usual, a great success. Mr. C. T. Dalgety showed a film of a trip to Spitsbergen, the Hon. Guy Charteris a series of slides from Hungary, and Mr. Anthony Buxton slides and a cinematograph film of birds round Geneva.

The Club entertained as distinguished guests, during the course of the Session, Dr. and Mrs. R. Cushman Murphy (New York), Dr. Charles W. Townsend (U.S.A.), and Mr. E. F. Stead (New Zealand).

G. CARMICHAEL LOW,
Editor.

London, July 1932.

BRITISH ORNITHOLOGISTS' CLUB.

(Founded October 5, 1892.)

TITLE AND OBJECTS.

The objects of the Club, which shall be called the "British Ornithologists' Club," are the promotion of social intercourse between Members of the British Ornithologists' Union and to facilitate the publication of scientific information connected with ornithology.

RULES.

(*As amended, October* 8, 1930.)

Management.

I. The affairs of the Club shall be managed by a Committee, to consist of a Chairman, who shall be elected for three years, at the end of which period he shall not be eligible for re-election for the next term; a Vice-Chairman, who shall serve for one year, and who shall not be eligible for the next year; an Editor of the 'Bulletin,' who shall be elected for five years, at the end of which period he shall not be eligible for re-election for the next term; a Secretary and Treasurer, who shall be elected for a term of one year, but shall be eligible for re-election. There shall be in addition four other Members, the senior of whom shall retire each year, and another Member be elected in his place; every third year the two senior Members shall retire and two other Members be elected in their place. Officers and Members of the Committee shall be elected by the Members of the Club at a General Meeting, and the names of such Officers and Members of Committee nominated by the Committee for the ensuing year, shall be circulated with the notice convening the General Meeting, at least two weeks before the Meeting. Should any Member wish to propose another candidate, the nomination of such, signed by at least two Members, must reach the Secretary at least one clear week before the Annual General Meeting.

II. Any Member desiring to make a complaint of the manner in which the affairs of the Club are conducted, must communicate in writing with the Chairman, who will, if he deem fit, call a Committee Meeting to deal with the matter.

III. If the conduct of any Member shall be deemed by the Committee to be prejudicial to the interests of the Club, he may be requested by the Committee to withdraw from the Club. In the case of refusal, his name may be removed from the list of Members at a General Meeting, provided that, in the notice calling the Meeting, intimation of the proposed resolution to remove his name shall have been given, and that a majority of the Members voting at such Meeting record their votes for his removal.

A Member whose name has been removed shall forfeit all privileges of Membership and shall have no claim on the Club from the date of his removal.

Subscriptions.

IV. Any Member of the British Ornithologists' Union may become a Member of the Club on payment to the Treasurer of an entrance-fee of one pound and a subscription of one guinea for the current Session. On Membership of the Union ceasing, Membership of the Club also ceases.

Any Member who has not paid his subscription before the last Meeting of the Session, shall cease, *ipso facto*, to be a Member of the Club, but may be reinstated on payment of arrears.

Any Member who has resigned less than five years ago may be reinstated without payment of another Entrance Fee.

Any Member who resigns his Membership on going abroad may be readmitted without payment of a further Entrance Fee at the Committee's discretion.

Meetings.

V. The Club will meet, as a rule, on the second Wednesday in every month, from October to June inclusive, at such hour and place as may be arranged by the Committee, but should such Wednesday happen to be Ash Wednesday, the Meeting will take place on the Wednesday following. At these Meetings papers upon ornithological subjects will be read, specimens exhibited and described, and discussion invited.

VI. A General Meeting of the Club shall be held on the day of the October Meeting of each Session and the Treasurer shall present thereat the Balance-sheet and Report; and the election of Officers and Committee, in so far as their election is required, shall be held at such Meeting.

VII. A Special General Meeting may be called at the instance of the Committee, for any purpose which they deem to be of sufficient importance, or at the instance of not fewer than fifteen Members. Notice of not less than two weeks shall be given of every General and Special General Meeting.

Introduction of Visitors.

VIII. Members may introduce visitors at any ordinary Meeting of the Club, but the same guest shall not be eligible to attend on more than three occasions during the Session. No former Member, who has been removed for non-payment of subscription, or for any other cause, shall be allowed to attend as a guest.

'Bulletin' of the Club.

IX. An Abstract of the Proceedings of the Club shall be printed as soon as possible after each Meeting, under the title of the 'Bulletin of the British Ornithologists' Club' and shall be distributed gratis to every Member who has paid his subscription.

Contributors are entitled to six free copies of the 'Bulletin,' but if they desire to exercise this privilege, they must give notice to the Editor when their manuscript is handed in. Members purchasing extra copies of the 'Bulletin' are entitled to a rebate of 25 per cent. on the published price, but not more than two copies can be sold to any Member unless ordered before printing.

Descriptions of new species may be published in the 'Bulletin,' although such were not communicated at the Meeting of the Club. This shall be done at the discretion of the Editor and so long as the publication of the 'Bulletin' is not unduly delayed thereby.

Any person speaking at a Meeting of the Club shall be allowed subsequently—subject to the discretion of the Editor—to amplify his remarks in the 'Bulletin,' but no fresh matter shall be incorporated with such remarks.

X. No communication, the whole or any important part of which has already been published elsewhere, shall be eligible for publication in the 'Bulletin,' except at the discretion of the Editor; and no communication made to the Club may be subsequently published elsewhere without the written sanction of the Editor.

Alteration and Repeal of Rules.

XI. Any suggested alteration or repeal of a standing rule shall be submitted to Members to be voted upon at a General Meeting convened for that purpose.

COMMITTEE, 1931–1932.

Major S. S. Flower, *Chairman.* Elected 1930.

W. L. Sclater, *Vice-Chairman.* Elected 1931.

Dr. G. Carmichael Low, *Editor.* Elected 1930.

C. W. Mackworth-Praed, *Hon. Secretary and Treasurer.* Elected 1929.

F. J. F. Barrington. Elected 1929.

Dr. P. H. Manson-Bahr. Elected 1930.

Dr. A. Landsborough Thomson. Elected 1930.

Rev. J. R. Hale. Elected 1931.

Officers of the British Ornithologists' Club, Past and Present.

Chairmen.

P. L. Sclater, F.R.S.	1892–1913.
Lord Rothschild, F.R.S.	1913–1918.
W. L. Sclater.	1918–1924.
H. F. Witherby.	1924–1927.
Dr. P. R. Lowe.	1927–1930.
Major S. S. Flower.	1930–

Vice-Chairmen.

Lord Rothschild, F.R.S.	1930–1931.
W. L. Sclater.	1931–1932.

Editors.

R. Bowdler Sharpe.	1892–1904.
W. R. Ogilvie-Grant.	1904–1914.
D. A. Bannerman.	1914–1915.
D. Seth-Smith.	1915–1920.
Dr. P. R. Lowe.	1920–1925.
N. B. Kinnear.	1925–1930.
Dr. G. Carmichael Low.	1930–

Honorary Secretaries and Treasurers.

Howard Saunders.	1892–1899.
W. E. de Winton.	1899–1904.
H. F. Witherby.	1904–1914.
Dr. P. R. Lowe.	1914–1915.
C. G. Talbot-Ponsonby.	1915–1918.
D. A. Bannerman.	1918–1919.
Dr. Philip Gosse.	1919–1920.
J. L. Bonhote.	1920–1922.
C. W. Mackworth-Praed.	1922–1923.
Dr. G. Carmichael Low.	1923–1929.
C. W. Mackworth-Praed.	1929–

LIST OF MEMBERS.

JUNE 1932.

Acland, Miss C. M.; Walwood, Banstead, Surrey.

Adams, Ernest E.; Lloyd's, Royal Exchange, E.C. 3.

Alexander, H. G.; 144 Oak Tree Lane, Selly Oak, Birmingham.

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Aplin, Oliver Vernon; Stonehill House, Bloxham, Banbury, Oxon.

Aylmer, Commdr. E. A., R.N.; H.M.S. 'Marazion,' China Station.

Baily, W. Shore; Boyers House, Westbury, Wilts.

Baker, E. C. Stuart, C.I.E., O.B.E., F.Z.S., F.L.S., H.F.A.O.U.; 6 Harold Road, Upper Norwood, S.E. 19.

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Best, Miss M. G. S.; Broadwater, Amport, Andover, Hants.

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Player, W. J. P.; Wernfadog, Clydach R.S.O., Glamorganshire.

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135 Shipton, Wm., B.A., M.D.; 2 The Square, Buxton.

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Snouckaert van Schauburg, Baron Rene Charles; Hôtel les Terrasses, Territet, Switzerland.

140 Sparrow, Col. R., C.M.G., D.S.O., F.Z.S., F.R.G.S.; The Lodge, Colne Engaine, Earls Colne, Essex.

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Stoneham, Lt.-Col. H. F., O.B.E., F.E.S.; Kitale Estates, Kenya Colony, British East Africa.

Stuart-Menteth, W. G.; Bransfield, Godstone, Surrey.

145 Styan, F. W., F.Z.S.; Stone Street, near Sevenoaks.

Swynnerton, C. F. Massy; Poste Restante, Dar-es-Salaam, Tanganyika Territory, East Africa.

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150 Thomson, A. Landsborough, O.B.E., D.Sc. (*Committee*); 9 Addison Gardens, W. 14.

Thorpe, W. H., M.A., Ph.D.; Jesus College, Cambridge.

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Ticehurst, N. F., O.B.E., M.A., M.B., F.R.C.S., F.Z.S.; 24 Pevensey Road, St. Leonards-on-Sea.

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155 Turner, Miss E. L., F.Z.S.; The Half Way Cottage, 13 Storey' Way, Cambridge.

Turtle, Lancelot J.; Rosemount, Knock, Belfast.

Tyrwhitt-Drake, Hugh G., F.Z.S.; Cobtree Manor, Sandling, Maidstone.

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Whistler, Hugh, F.Z.S., F.L.S.; Caldbec House, Battle, Sussex.

Whitaker, Joseph I. S., F.Z.S.; Malfitano, Palermo, Sicily.

White, S. J., F.Z.S.; 17 Philpot Lane, E.C. 3

Whitley, H.; Primley, Paignton, S. Devon.

Williams, Victor Owen; 6 Crown Office Row, Temple, E.C. 4.

Williamson, Sir W. J. F., C.M.G., F.Z.S.; c/o Lloyds Bank, 6 Pall Mall, S.W. 1.

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Wishart, E. E.; Marsh Farm, Binsted, Arundel, Sussex.

Witherby, Harry F., M.B.E., F.Z.S. (*Chairman*, 1924–1927); 326 High Holborn, W.C. 1.

Witherington, G.; Sumner Plat, Hayward's Heath.

Wood, Dr. Casey A., M.D.; c/o The Library of Ornithology, McGill University, Montreal, Canada.

Wood, C. R.; c/o Messrs. Martins, Ltd. (marked "Personal"), 54 Sussex Place, South Kensington, S.W. 7.

Workman, William Hughes, F.Z.S.; Lismore, Windsor Avenue, Belfast.

Worms, Charles de; Milton Park, Egham, Surrey.

Total number of Members 177

NOTICE.

[Members are specially requested to keep the Hon. Secretary informed of any changes in their addresses, and those residing abroad should give early notification of coming home on leave.]

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Bird Room

BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB.

No. CCCLIII.

The three-hundred-and-forty-eighth Meeting of the Club was held at Pagani's Restaurant, 42–48 Great Portland Street, W.1, on Wednesday, October 14, 1931.

Chairman : Major S. S. Flower.

Members present :—Miss C. M. Acland ; W. B. Alexander ; W. Shore Baily ; E. C. Stuart Baker ; F. J. F. Barrington; Miss R. Blezard ; S. Boorman ; P. F. Bunyard ; H. P. O. Cleave ; Capt. H. L. Cochrane, R.N. ; Sir Percy Z. Cox ; Lt.-Col. A. Delmé-Radcliffe ; Miss J. M. Ferrier ; A. G. Glenister ; Hon. M. Hachisuka ; Rev. J. R. Hale ; Col. A. E. Hamerton ; Dr. E. Hopkinson ; Dr. Karl Jordan; Rev. F. C. R. Jourdain; N. B. Kinnear; Miss E. P. Leach ; Dr. G. Carmichael Low (*Editor*) ; Dr. P. R. Lowe ; Rear-Admiral H. Lynes ; T. H. McKittrick, jun. ; C. W. Mackworth-Praed (*Hon. Sec. & Treas.*) ; Dr. P. H. Manson-Bahr ; Dr. W. Norman May ; F. R. Ratcliff ; C. B. Rickett ; D. Seth-Smith; Major M. H. Simonds; Major A. G. L. Sladen; H. Stevens; C. G. Talbot-Ponsonby ; Dr. A. Landsborough Thomson ; Dr. C. B. Ticehurst ; B. W. Tucker ; Miss E. L. Turner ; H. M. Wallis ; H. Whistler; V. O. Williams ; H. F. Witherby; C. de Worms.

Guests :—Miss Delmé-Radcliffe ; Miss C. Franklin ; J. P. R. Hale ; A. H. Harkness ; Miss C. Longfield ; Miss B. S. Lynes ; Col. E. Percy-Smith ; J. A. Ryle ; Mrs. Witherby.

Members of the B.O.U. :—Major F. W. Borman, Willoughby P. Lowe ; B. B. Osmaston ; W. Raw ; Jack Vincent.

Annual General Meeting.

This was held at Pagani's Restaurant, Great Portland Street, immediately preceding the dinner, Major S. S. Flower, Chairman of the Club, presiding.

The Minutes of the last Meeting were read and confirmed.

The Honorary Secretary, Mr. C. W. Mackworth-Praed, presented the Financial Statement and Secretary's Report for the past Session, 1930–1931.

The Club, he said, was still slowly growing ; four Members had resigned—Capt. E. G. Herbert, Sir H. P. W. Macnaghten, Sir M. Seton, and Capt. H. S. Stokes—and he regretted to report the death of Mr. J. P. Norris, of Philadelphia. This was a loss of five Members, while the Club had gained nine new Members.

Statistics of Meetings showed that 499 Members and Guests had attended during the Session, as against 440 the previous year. The Financial Statement showed no very great change, except that the Club had for a special reason increased its contribution to the 'Zoological Record,' and a letter of thanks from the Zoological Society was read by the Hon. Secretary.

The Report and Financial Statement were read and adopted.

Mr. W. L. Sclater was elected Vice-Chairman of the Club in place of Lord Rothschild, whose period of office expired.

Mr. C. W. Mackworth-Praed was re-elected Honorary Secretary and Treasurer.

The Rev. J. R. Hale was elected a Member of the Committee in place of Mr. B. W. Tucker, whose period of office terminated.

Committee, 1931–1932.

Major S. S. Flower, *Chairman* (elected 1930).
Mr. W. L. Sclater, *Vice-Chairman* (elected 1931).
Dr. G. Carmichael Low, *Editor* (elected 1930).
Mr. C. W. Mackworth-Praed, *Honorary Secretary and Treasurer* (elected 1929).
Mr. F. J. F. Barrington (elected 1929).
Dr. P. H. Manson-Bahr (elected 1930).
Dr. A. Landsborough Thomson (elected 1930).
Rev. J. R. Hale (elected 1931).

BRITISH ORNITHOLOGISTS' CLUB.

Financial Statement for the 12 *months September* 1, 1930, *to August* 31, 1931.

12 m'ths ended Aug. 31, 1930.									12 m'ths ended Aug. 31, 1930.								
£	s.	d.		£	s.	d.	£	s.	d.	£	s.	d.		£	s.	d.	£	s.	d.
			To Balance in Hand, 1st September, 1930:—										By Printing and Distribution of						
114	13	4	Cash at Bank, Current a/c	82	12	11				103	6	8	Publications and 'Bulletin'				138	7	11
487	7	5	Do. Deposit a/c	614	13	9				15	12	0	,, Hire of Lanterns at Meetings				9	17	0
1	6	11	In Hands of Treasurer ...	0	17	1							,, H. B. Usher for completing and arranging Index to						
							698	3	9	6	4	0	'Bulletin' B.O.C. 1930–31.				5	5	0
			,, Entrance Fees of 9 New Subscribers ...	9	0	0				11	5	0	,, Contribution to 'Zoological Record' ...				22	10	0
8	0	0											,, Miscellaneous Expenses, including Audit Fee, Printing,						
184	16	0	,, Subscriptions—176 Members	184	16	0				22	1	1	Stationery, and Postages ...				12	11	11
							193	16	0										
40	6	8	,, Sales of 'Bulletin' ...				74	9	5	158	8	9	Total Payments				188	11	10
20	2	2	,, Bank Interest ...				16	6	4										
													,, Balance in Hand, August 31, 1931:—						
										82	12	11	Cash at Bank, Current a/c	58	10	3			
										614	13	9	Do. Deposit a/c	731	0	1			
										17	1		In Hands of Treasurer ...	4	13	4			
																	794	3	8
£856	12	6					£982	15	6	£856	12	6					£982	15	6

C. W. MACKWORTH-PRAED, *Treasurer.*

We have compared the foregoing Statement with the books and vouchers of the British Ornithologists' Club for the year ended August 31, 1931, and certify same to be in accordance therewith. We have also verified the Cash at Bank.

23 Queen Victoria Street,
London, E.C. 4.
September 7, 1931.

W. B. KEEN & CO.,
Chartered Accountants.

Rear-Admiral Lynes gave a short account * of his 1930–31 tour with Mr. Jack Vincent across Central Africa, from north-eastern Rhodesia by automobile to the Atlantic at Lobito and St. Paul de Loanda, and thence by ship, rail and car to Sierra Leone via the Lower Congo, Cameroon highlands, Nigeria and Gold Coast Colony.

Their chief objective, he explained, had been to make the acquaintance of the different kinds of Cisticola inhabiting those parts of Central and West Africa—none of which, except west-central Angola, he had been able to visit in his 1926–27 tour with Mr. Osmaston—and from that experience to see how the 1930 Cisticola Review could be improved.

Rear-Admiral Lynes said that on returning to England last June he had intended to set about publishing the results of this tour, but the happy conjunction of an invitation to visit southern Tanganyika Territory and the willingness of his old friend Mr. Willoughby Lowe to accompany him there had caused him to alter his plans. Mr. Lowe and he intend to land at Mombasa early in November, spend a few weeks in Kenya Colony occupied with some outstanding Cisticola desiderata there, and then go south to the Iringa Province of Tanganyika Territory to try, during the next four months, to find out as much as possible about the whole bird population of that comparatively little known part of Africa.

This being the case, he would do nothing now about the results of his last tour than make public the few new kinds of Cisticola discovered during its course and deposit their Types in the British Museum, say that the tour was on the whole very successful, thanks largely to his companion's skill and ability and his first-rate knowledge of South African birds, and that the information gained about the Cisticolas can improve, but does not materially alter anything of what is written in the Cisticola Review.

On return to England next Spring he hopes to set about working out and publishing the results of both these African tours—that which concerns Cisticolas in a short appendix to the Review—and meanwhile Mr. W. L. Sclater, at his convenience, will publish whatever he thinks of value in the small

* The type in Rear-Admiral Lynes' paper, in accordance with his wishes, is set in a similar manner to that of his Cisticola Review.—Ed.

collection of non-Cisticoline birds made during the recent tour—chiefly in north-eastern Rhodesia.

Mr. Vincent, he added, is also on the point of leaving England—to carry out an ornithological survey of the little known bird population of Portuguese East Africa for the British Museum. He will spend a whole year over this, and then set about publishing an account of the survey, and the Admiral is sure that, in this, Ornithology has something good to look forward to.

The new kinds of Cisticola exhibited were as follows :—

Cisticola dambo, sp. nov.

Type the male, and co-type the female, in the British Museum, respectively reg. nos. 1931.10.8.1 and 2 ; a pair of breeding adults in good Summer dresses, parents of two young, eight days old, in the nest with one addled egg, collected by Rear-Admiral Lynes and Mr. Jack Vincent, 6 Jan. 1931, at Nasondoye, in the southern Belgian Congo, Lat. 10½° S., Long. 25° E., 3300 ft. altitude. Type ♂ wing 53, tail 43 : co-type ♀ wing 47, tail

A new species of Cloud-scraper, not at all unlike the *C. juncidis* in form, but whose coloration and behaviour is quite typical of the Cloud-scraper group. The characteristics of form are the more *juncidis*-like build and proportions, including those of the wing, the long Summer tail and unossified leg tendons; of coloration the all black tail; and of behaviour (habitat, habits and nest) just what allies *dambo* with the Cloud-scraper group. Very easily recognized in life when breeding from any of its nearest relatives by the quite distinctive song and aerial antics of the cock bird, and the very long black tail of both sexes.

Travelling westwards along the (Belgian) Congo side of the Congo-Zambesi divide we first found the species at Nasondoye, 3300 ft., Long. 25° E. There it was common and breeding, and besides a number of specimens we took nests, eggs and young.

Continuing westwards, there seemed little change in the bird's status wherever there were any open short-grass flats suitable for it, until about Long. 20° E. in eastern Angola (but still in the Congo watershed), after which

we lost the species completely, although working many miles of the equally suitable looking ground which exists so far west as Long. 15° E., and which held other Cloud-scrapers like *C. textrix* and *C. ayresii*.

On the same piece of ground, although as a rule on tracts of it which differed somewhat in moisture and plant-life, besides *C. dambo* we found one or more of the following small Lark-like Cisticolas—*C. juncidis*, *textrix*, *ayresii* and *brunnescens*.

If there is any previous ornithological knowledge of this part of Central Africa, we can find no record of it.

DESCRIPTION of the species from a series of twenty-one adult males and fifteen adult females in their Summer dresses, and six young just fledged or fledging.

Ad. ♂ *Summer*. **Above**, head-top blackish to very dark sepia, nearly uniform but just not so by the narrowest dark buff borders to the feathers; back in no more than moderate contrast, heavily mottled black (the broad feather-centres) and dark buff (the narrow feather-borders); hind-neck rather lighter through the feathers having smaller black centres and correspondingly broader buff borders, but not making a conspicuous collarette; rump in conspicuous contrast, rich bright rust-red; upper tail-coverts like the back, mottled.

Below, white, washed all over, except on the chin, throat and lower belly, with bright rusty buff, very strongly on the sides, flanks and thighs, less strongly elsewhere; plain throughout.

Face, supraloral rusty white, a noticeable, but little conspicuous, black subloral spot; remainder of the face more or less tinted with rust-reddish, the ear-coverts lightly, and a fairly well defined eyebrow more strongly.

Wing, edging, tertials and all harmonizing with the broken colour-pattern of the upper side.

Tail, of plain black pattern above and below, with tips and outermost edgings of slightly rusty-tinted white.

Bare parts, like all other Cloud-scrapers and *juncidis*, *i. e.* the whole mouth black, etc.

Ad. ♀ *Summer* (cf. *ad.* ♂ *S.*). Colour tints of the plumage the same, but the pattern quite noticeably different, as follows :–**Above**, the head-top not nearly plain, but boldly mottled like the back ; the back with all the mottlings rather less heavy and the buff borders correspondingly more assertive—**subloral spot** quite absent, whole lores whitish—**mouth** flesh.

Juv. ♂, ♀. More like the ♀ Summer, but **above**, the pattern more a broad-striped than a mottled one, the black feather-centres narrower, the buff feather-borders correspondingly broader and more dominant and much more rusty in colour ; **below**, brightly sulphured except on the lower belly and flanks. (Probably the usual mealy, rustier-tinted edition of the Winter dress, were that dress known.)

MEASUREMENTS.

Ad. ♂. Wing 53±2 : tail S. 41±2 (occ. 44) ! : leg 20 : mid-toe and claw 17 : bill 10 (skull 12) : 1 P./2 P. av. 15/34 (45 %).

Ad. ♀. Wing 48±1 (occ. ±2) : tail S. 38±2 (occ. −3).

Juv. ♂ (only one fully grown) 1 P./2 P. = 16/30 (53 %).

RANGE. The southern rim of the Congo basin between Longitudes 20° and 25° E.

✓ **Cisticola textrix bulubulu,** subsp. nov.

Type the male, and co-type the female, in the British Museum, respectively reg. nos. 1931.10.8.3 and 4 ; a pair of breeding adults in half worn Summer dresses, collected by Rear-Admiral Lynes and Mr. Jack Vincent, 12 Feb. 1931, near Bihe, 5700 ft., on the upland plateau of central-western Angola (Atlantic, but not Congo watershed). Type ♂ wing 56, tail 26 : co-type ♀ wing 49, tail 25.

The 1930 Cisticola Review recognized two races of this species, viz. the typical race of southern Cape Province, which is heavily breast-spotted, and the plain-breasted, lighter-coloured race of the Transvaal, which was then thought to be the northern limit of the range of the species. Now we can show an extension of specific range to the

northward and westward of a thousand miles. Travelling westwards from northern Rhodesia between the parallels of 10° & 15° S., we first met with the species—breeding—in Lat. 10½° S., Long. 20¾° E., *i. e.* in eastern Angola on the Congo drainage side of the Zambesi–Congo water-parting, at about 4000 ft. altitude.

Here, whatever may be the case in the unknown off-season, the bird is just like the Transvaal race *mystica*. Perhaps others of the species exist somewhere in this large gap ; a great deal of it is still (ornithologically) unknown ; on the other hand much of it is the wrong kind of country, and *textrix* is a very fastidious little creature in its choice of ground.

Continuing westward, one soon comes to where the streams no longer flow into the Congo (or the Zambesi), but more directly through Angola into the Atlantic Ocean, and about two hundred miles further on, when crossing the upland plateau of western Angola we again found the species, still unaltered in behaviour, but with evident difference of coloration, a difference akin to that which characterizes the local forms of several other species of *Cisticola* in the same locality, viz. greater depth of coloration.

DESCRIPTION of the race from a series of six adult males and two adult females in their summer dresses, and seventeen birds of the year in juvenile and first Winter dresses.

Size. The same as the other two races.

Coloration. *Adults Summer.* **Above**, all the colour-pigments markedly deeper than *mystica*, and this, accentuated by the black feather-centres being larger as well as blacker, makes the general appearance even darker than that of *textrix* ; male Summer head-top of the same nearly plain pattern as *mystica*, rich, dark rust-brown, becoming dappled as wear discloses the dark feather-bases—**below**, like *mystica*, plain (except for the bold pectoral patches of the male), but with the rusty buff suffusions on the sides and flanks noticeably stronger, brighter and more in evidence.

Imm. First Winter. **Above**, of similar broad-striped winter pattern, but the colour-tints very much darker

than *mystica* and considerably darker than *textrix*—**below**, the rusty buff suffusions stronger than either.

Juvs. As usual in *Cisticola*, much more like juveniles of the other races, the racial colour characteristics only apparent in minor key, and, of course, plain below like *mystica*.

RANGE. Only known on the upland plateau of central-western Angola.

Cisticola ayresii gabun, subsp. nov.

Type the male, and co-type the female, in the British Museum, respectively reg. nos. 1931.10.8.5 and 6, two breeding adults in two-thirds worn breeding dress, collected by Rear-Admiral Lynes and Mr. Jack Vincent, 17 April 1931, at Port Gentil, coastal Gabun, near the Equator. Type ♂ wing 46, tail 21 : co-type ♀ wing 43, tail 24.

On the way from the Congo to Duala our ship anchored off Port Gentil long enough for us to spend a few hours ashore there, and on a short-grass sandy flat we found among other birds, including *C. juncidis*, a nice sprinkling of these little Cloud-scrapers, breeding. Hitherto the only known record of the existence of *ayresii* sp. to the northward of Lat. 12° S. on the *western* side of Africa was of a single fledgling from near by this very place (Cisticola Review, p. 152), and enough is known of the intervening country, viz. northern Angola and the Lower Congo territories, to suggest the likelihood of this species being absent there.

The southern (central Angolan) *ayresii* are too like the typical South Africans to classify them separately, but the Gabuns are markedly different, much more like the Uganda race of *ayresii*, viz. *entebbe*, and, like them, probably have the perennial *mode* of dress.

DESCRIPTION of the race from a series of three males and one female in their breeding dresses, and two birds of the year about two months old.

Size. The same as *entebbe*, i. e. rather smaller than *ayresii*.
Coloration. *Adults* (cf. *entebbe*). **Above**, very similar—but

the general appearance of the back still lighter owing to the narrower dark feather-centres, and the male (breeding) head-top markedly different, being uniform rust-red with no more than a few dark blemishes, instead of nearly all smudgily mottled with black.

Imm. & Juvs. Not materially different, at any rate on present (small) material.

RANGE. Only known from the neighbourhood of the type locality in coastal Gabun.

Cisticola eximia winneba, subsp. nov.

Type the male, and co-type the female, in the British Museum, respectively reg. nos. 1931.10.8.7 and 8, a pair of breeding adults in fresh Summer dresses collected by Rear-Admiral Lynes and Mr. Jack Vincent, 24 May 1931, at Winneba, Gold Coast Colony, nr. sea-level. Type ♂ wing 48, tail 29: co-type ♀ wing 45½, tail 30.

A new race of the Cloud-scraper which seems to be confined to *northern* tropical Africa and of whose life scarcely anything was known before Major Cheesman found it out in Abyssinia three years ago. The 1930 Cisticola Review recognized two races, an eastern, typical in the Nile valley, and a West African *occidens*, distinguished from the former by the different coloration of its *Winter*, but not its Summer dress, founded on no more than a small series of specimens from northern Nigeria, Sierra Leone and Portuguese Guinea.

The Gold Coast is a new country for *eximia*, and both sexes of these birds from its sea-coast differ quite distinctly from the other West Africans in the coloration of their *Summer* dresses. They certainly have a Winter dress, but what it is remains to be found out. In behaviour they agree, as they should do, in all essential respects with what is known of their eastern representatives, and, as we found out a week later, also with those (*occidens*) at Sierra Leone.

Plotted on a plain map, the distribution of these two West African races looks curious, but isolation of the birds

at Winneba due to its peculiar ecologic conditions may reasonably explain it otherwise. Winneba, at a small seaside belt of open, treeless country, and with a mean annual rainfall of only twenty inches, lies in that singular " dry " strip of the Guinea coast between Cape Three Points and Dahomey which is flanked and backed by several hundred miles of woodland and forest and a much greater rainfall. Whatever suitable ground there may be along the open savanna of the upper Niger and Volta territories of the hinterland to account, by a more or less continuous specific distribution, for the similarity of the Sierra Leone and northern Nigerian races, Winneba is certainly shut off from it, as well as from both those territories, by very large tracts of country which seem unsuitable for habitation by a bird of this kind.

DESCRIPTION of the race from a small series of three adult males and one adult female (laying eggs), in their Summer dresses. *Compared with the other West African and the Nile valley birds.*

Size. The same.

Coloration. *Adults Summer.* The colour-tints throughout the whole plumage, blacks, buffs and reds, particularly the last ; markedly weaker, looking as if a Sierra Leone bird had had half its colour-pigments soaked out of it so as to make its whole coloration look cold and faded. Every one of the four birds is separable even from memory of the others, as we observed in the field on getting them in the hand.

RANGE. Only known from the type locality on the Gold Coast.

✓ **Cisticola lais namba,** subsp. nov.

Type the male, and co-type the female, in the British Museum, respectively reg. nos. 1931.10.8.9 and 10, a pair of breeding adults in good Summer dresses, parents of a nest of two naked young and one addled egg, collected by Rear-Admiral Lynes and Mr. Jack Vincent, 8 March 1931,

at Namba 6700 ft., *c.* Lat. 12° S., Long. 15° E., in the highlands of central-western Angola, "Mombolo loc." Type ♂ wing 60, tail *c.* 60: co-type ♀ wing 54, tail 47+ (tails not renewed at Spring moult, consequently very worn).

This is the definition and name proposed for the race to which belongs the single specimen of *lais* sp. called, in the 1930 Cisticola Review (p. 232), "*Cisticola lais* of Angola."

To find out about this bird and the *Cisticola emini* * sp. represented by two skins from the same locality was the particular purpose of our visit to Namba.

The "Mombolo loc." (a map name is lacking) is a tract of the Angolan highlands about six hundred square miles in extent, and singular in its physical features chiefly through the many huge bare surfaces and slabs of granite rock which outcrop among the grass and bush and, in the dips, patches of forest jungle; and this peculiarity affords a very reasonable explanation for the presence of these two species being found there and nowhere else, so far as is known, in Angola. Both species are common there, and both were breeding at the time of our visit. In all traits of behaviour the Angolan *lais* is quite like the *lais* of Natal, separated though it be from the nearest known representative of its species by more than a thousand miles, a distributional gap in the range of the species which, even if little ornithologically known, holds out little promise of abridgment judging from a glance at its physical geography?

DESCRIPTION of the race from a series of eight adult males and three adult females in their Summer dresses.

Size. That of the smaller aggregate of *lais* in eastern Cape Province, viz. ♂ wing 61±1, tail *S.* 53±1: ♀ wing 53±1, tail *S.* 46.

Coloration. *Adults Summer.* (cf. *lais S.*). Different as follows:—**Above**, the head-top richer, redder and nearly

* Professor Neumann is about to name this bird, which was referred to in the Cisticola Review, p. 314, as "*Cisticola emini* of Angola."

plain, no more than obsoletely mottled with dark rust-brown; the back feather-borders ashy grey, not cold sepia, and their black centres narrower, these differences giving the general appearance of greater contrast between the back and head-top—**below**, the suffusions grey with very little buff tint, rather more widespread and rather deeper—**tail**, spots the rule about the same, but occasionally spread over *both* webs (some instability of the character).

Adults Winter. No more can be added to what was said of the *Winter* dress of this race in the Cisticola Review, p. 232; the dress of that individual differs from the Summer dress of its own race very much as *lais W.* differs from *lais S.*, *i. e.*, more brown and more striped, etc.

RANGE. Only known from the Type locality in Angola.

Mr. HERBERT STEVENS gave an account of a journey to the Himalaya during the cold season of 1930–1931 :—

Throughout the last cold season I worked the Sikkim Himalaya for mammals and birds. Familiar with the physical features of the country and local conditions by my previous long residence, I decided to fix camps at various altitudes, and, by confining myself to a more or less limited area, employ the time to the best advantage. The results amply justified the seven months I was occupied.

My choice lay in the direction of the well-known trade route to and from Tibet which traverses eastern Sikkim, but preparatory to crossing the political frontier, preliminary collecting was undertaken in the foothills, and in order to obtain specimens of such species that do not even reach the base of the hills, a commencement was made in the plains at Haldibari in Cooch Behar. Hereabouts *Cisticola* in the grass-lands, with the Brown Hawk-Owl (*Ninox scutulata*) and the Little Scaly-bellied Green Woodpecker (*Picus vittatus myrmecophaneus*) within the limits of the village, were possibly of most interest. Leaving, after a fortnight's stay, Sevoke, in the Terai, was reached on October 22, 1930. Situated in the malarial belt, with a bad reputation in consequence, and unusually unhealthy towards the termination of the

rains, it was not surprising that sickness made its appearance amongst my boys. However, this camp was only vacated after a month's work in the heavy forest, which is the habitat of the Large Hornbill (*Dichoceros bicornis*) and Tickell's Flycatcher-Warbler (*Seicercus cantator*), while the dense undergrowth provides shelter for the Kalij Pheasant (*Gennœus melanotus*) at its lowest distribution limit, and numerous Timaliidæ, such as *Malacocincla* and *Pellorneum*. Mr. G. E. Shaw, Quinologist of the Government Cinchona Plantations at Mungpoo, lost no time in renewing an old friendship. Professor Percy Moore, of Philadelphia, a collaborateur of the Fauna volume on Hirudinæ, also accepted my primitive hospitality in order to study the life-history of his favourite animals—the land-leeches—with which the place abounded, though other less obtrusive and insignificant pests were, in my experience, equally, if not more, troublesome.

From November 19 to December 28 a profitable time was spent at Mungpoo. Out of all the specimens obtained, the Spotted Wren (*Elachura formosa*) and the Forest Eagle-Owl (*Huhua nipalensis*) were the most welcome. Descending, a camp was fixed below Sangsir in the Tista Valley, where the Long-tailed Sibia (*Heterophasa picaoides picaoides*) and several Woodpeckers, including *Gecinulus grantia*, the Pigmy Blue Flycatcher (*Nitidula hodgsoni*), *Phyllergates coronatus*, *Yuhina nigrimenta*, *Baza jerdoni* and many others were obtained. Ascending to Mungsong, at 4500 feet, during a brief visit, we were fortunately favoured in the weather, as it is from a point a few yards away from this residence that the finest view of "the snows" is obtainable in the Darjeeling district, embracing as it does the maidan at Rangpo, 1200 feet, the only level ground in Sikkim with all the alternating mountain ranges, culminating in the summit of Kinchinjunga and its sister peaks. Unfortunately this is only known to a limited few. Rail-head having been left behind at Kalimpong Road, I was dependent upon human transport, also employing bullock carts whenever these useful but tardy vehicles could be obtained. In spite of an overturned cart on quitting camp, everything arrived in due course at Rangpo, where a halt of two days allowed time to make further arrangements.

A long-delayed thunderstorm, evidently quite local, compensated, if it did deluge the camp, in the opportunity afforded for observing a small party of the Red-legged Falconet (*Microhierax cærulescens*) contentedly preening themselves at daybreak alongside. The Ibis-bill (*Ibidorhyncha struthersii*) in its winter quarters frequented the shallows of the Rangpo River shortly before it joins the Tista.

Having commandeered a scrap lot of ponies, and taking a little-used route, a delightful open valley was traversed, and by evening Rarathang was reached. On January 25 I passed through Rongli, but not without the ever-recurring remonstrances from the ghorawallahs, invariably a difficult class of men to deal with. Refusing to listen to all arguments, and continuing on my way, the crowded bazaar, with all its attractions to my retinue, offered but a brief halt, and on arriving at a break in the road about two miles above Lingtam, camp was pitched on the cobbled surface, no more suitable ground being available. Now that I was once more firmly established my misgivings were soon dispelled, and the site proved to be ideal for my purpose, the only drawback to tranquility of mind being the everlasting roar from the torrent. The elevation of this camp was 5250 feet. The orange-carriers, frequently met with labouring under ponderous loads, were now replaced by droves of likewise heavily laden mules transporting the season's wool-crop to Kalimpong, which must, however, have offered only a small margin of profit, and most of which might well have been burnt to advantage. Constant fluctuation, due to changes in temperature, was obvious in the number of local migrants, such changes also making the resident species move farther afield. From this camp were obtained *Machlolophus spilonotus*, *Garrulax albogularis*, *Dryobates cathpharius*, *Chrysophlegma flavinucha*, *Cutia nipalensis*, *Pteruthius melanotis*, *Hæmatospiza sipahi*, *Spinus thibetanus* (a rare Siskin in collections), and even *Troglodytes nipalensis* down to 5000 feet, besides *Pachyglossa melanozantha* and *Dicæum ignipectus*, the two last named being obtained on gnarled trees festooned in the highest branches with mistletoe, the viscid seeds of which epiphyte *Pachyglossa melanozantha* can miraculously swallow but not digest.

The most attractive tree, widely scattered in this locality, was the "Gurupis" (*Leucosceptrum canum*), with a sweet nectar in its bottle-brush-shaped flowered stamen, which was frequented by Sunbirds and Barbets and other species too numerous to mention. In addition there were species of *Gennæus* and *Tragopan* and *Arborophila rufogularis*, and, to my surprise, *Arborophila mandellii*.

A rise of 7500 feet on the next march, only nine miles, brought me to my next site, and although dependent upon snow for water, there was no lack of rhododendron for firewood. After enduring the raging wind and extreme cold for two days and nights, at my request the villagers in Gnatong gladly came to the rescue, and, descending to 12,300 feet, the sanctuary of the rest-house was gained on March 5. The weather did not improve, and for real severity at high altitudes in my experience March and April are quite the worst months. The interminable mist rolled up almost daily, when a glorious morning's sunshine of a few hours duration was the last for that day. Apart from Crows and the Griffon Vulture in numbers, ever alert for the carcase of a dying mule, with the solitary Lammergeyer not far away, was a single pair of *Prunella rubeculoides*, with a small party of *Laiscopus himalayanus*, which soon moved below the snow-line. *Fringilauda nemoricola*, which later appeared in vast flocks, was there, and odd individuals of the Wren (*Troglodytes nipalensis*) and Blue-fronted Redstart (*Phœnicurus frontalis*). Once the ice thawed on the only stream fed from two small tarns, *Cinclus cashmeriensis* put in an appearance. While there was a paucity of bird-life in the pine forest, the usual Crested Tits, Creepers, and Bush-Robins (*Ianthia hyperythra*), too shy for near approach, could generally be met with. *Conostoma œmodium*, rare, of course, occupied the bamboo thickets along with *Ithaginis* and *Lophophorus*.

A large influx of migrants appeared with a brief break in the weather for the better, when pairing was in evidence. The scrub was crowded with *Phœnicurus frontalis* and *P. schisticeps*, and *Prunella strophiata*, an adept skulker, was equally plentiful. About this time *Perissospiza carnipes* and *Procarduelis rubescens* had separated into pairs, and from the

topmost branches sang with a note by no means to be despised. With the exception of odd Buzzards, invariably melanistic specimens, and the Raven, obtained at Kappu, 13,000 feet, one of a solitary pair, little else was seen, though a pair of *Aquila nipalensis* had deserted the adjacent hills.

Returning on my tracks, camp was pitched at Jeluk, 9200 feet, which was occupied from April 3–21. Hardly a day passed without a thunderstorm, often accompanied by hail, terrifying in grandeur, and had it not been known that phenomenal heat prevailed over the plains, the S.W. monsoon might have burst. Situated on a ridge, the flanks of the densely forested hills rose almost sheer behind. A warm pocket of air was evident within the ravine, where, on an extremely limited shelving patch of ground, overgrown with maling bamboo and interspersed with a few trees, a varied assemblage of birds occurred for a brief hour or so which allowed of ample discrimination in collecting. I do not recollect seeing any concourse similar in number and variety. This was in a measure accounted for by pressure from ascending migrants, agitated movement being evident with the approach of the breeding season.

While *Siphia strophiata* commonly haunted the moss-covered trees frequented by *Sibia nipalensis*, *Yuhina gularis*, *Yuhina occipitalis*, and *Dryobates darjellensis*, in the bamboo growth occurred *Suthora poliotis humii*, *Xiphoramphus superciliaris*, and *Ianthia indica*, and hereabouts one also obtained *Propyrrhula subhimachala*, *Pnoepyga albiventer*, *Homochlamys major*, and *Tickellia hodgsoni*. *Pyrrhula erythrocephala*, newly arrived, augmented *Æthopyga nipalensis* and *Pericrocotus brevirostris*, which already had nests, but suffered from the destructive forces of nature. Ticks had proved to be an intolerable nuisance at this altitude and lower.

Continuing on the descent, on reaching moderate altitudes numerous summer migrants, less conspicuous than *Stoporala thalassina*, were on their breeding-grounds, while the air rang with the noise of Barbets and Cuckoos. A brief halt was made at Rongli for a few days, and then back to Rangpo. Here I paid the penalty of delay, waiting for a motor-car faithfully promised to be repaired to time. Had I known this I would

have preferred to complete my journey on foot. Ascending once again to Mungpoo, the Forest-Bittern (*Gorsachius melanolophus*), not previously recorded for Sikkim, was observed. All the several consignments sent down from my various camps, with what were in my care, were duly packed and left with me for Calcutta on May 4, 1931.

Considering the Sikkim Himalaya is about three-fifths the size of Wales, a total of 556 species and subspecies known to occur within these limits is surprising. Actually this number represents the avifauna in the basin of a single valley, with its subsidiary offshoots, as every stream in Sikkim State finds its way into the Tista, apart from the headwaters of a few minor streams to the east, which rise hereabouts, and the streams of the lower foot-hills in the Darjeeling district. The absence of the Nutcracker and the rarity of *Horeites brunnifrons*, plentiful on the outer ranges during the breeding season, to mention but another, *Myzornis*, which certainly did not occur in the tract worked, proves my contention that some species are extremely local, though often numerous in the locality where they occur. Since Mandelli enriched the National Collection, in 1873–79, *Indicator*, *Sphenocichla*, and *Callene* remain to be rediscovered in their habitat. As two of these species are probably resident, some future collector will locate them, if they have not entirely disappeared, but it will only be by intensive collecting over a limited area. I feel I was fortunate to locate *Arborophila mandellii*, as its habitat had baffled others as well as myself. My field-notes are not available, but probably they will be incorporated in the results when published.

The Hon. M. Hachisuka read the following note on the Egyptian Goose nesting on Mt. Karisimbi :—

The photograph which I exhibit to-night is a nesting-site of an Egyptian Goose (*Alopochen ægyptiacus*) taken by Miss Lilly J. Knegt, a member of the Belgian Expedition to Parc National Albert, at Lukumi (about 12–13,000 feet altitude), near the summit of Mt. Karisimbi, in the Lake Kivu region, Belgian Congo.

The nest was first discovered by the party in April this

year, when this photograph was secured. The nesting-site was revisited more than a month later, when, unfortunately, it was found to be destroyed. Miss Knegt describes the temperature as about 5–6° C., and reports that water turns to ice by night and snow is not an uncommon sight. The bamboo zone ceases at about 9000 feet, and it is then an alpine meadow. Some parts of the ground are impossible to walk through owing to high water and soft mud. Scattered trees are covered with moss and lichen and always dripping wet. An interest attaches to the fact of finding a typical African Goose breeding high up in such a cold place, as this, to my knowledge, is the only record. Other examples, which can be compared, would be the Blue-winged Goose from Abyssinia (*Cyanochen cyanopterus*), which nests at great elevations, but this bird is nocturnal and highly specialized in itself. The nearly extinct Hawaiian Goose (*Nesochen sandvicensis*) nests on the volcanic slopes of Hawaii about 13,000 ft. up, but this bird again is essentially terrestrial, a habit adapted to their confined locality.

The Bar-headed Goose (*Anser indicus*) nests in colonies in Tibet between 10–15,000 feet ; but this is a Palæarctic species. The Egyptian Goose is the only species of the family represented on Lake Kivu.

Mr. H. F. Witherby exhibited an abnormally coloured Carrion-Crow (*Corvus c. corone*), which was sent to him by Mr. H. S. Gladstone, who obtained it on July 20, 1931 at Capenoch, Dumfriesshire. The bird was in company with four others, one of which appeared to be in similar plumage. This was, perhaps, a family party. The bird exhibited was moulting from juvenile plumage to first winter. The juvenile plumage was all grey with a brownish tinge, more ashy on the secondaries and wing-coverts. The new first winter plumage was of a darker smoky grey. When the bird reached Mr. Witherby the iris was bluish-grey, bill dark grey, legs and feet black tinged brown.

Mr. Witherby also exhibited an abnormally coloured Moorhen (*Gallinula ch. chloropus*), which had been obtained

at Stoke, near Nottingham, on Sept. 19, 1931, and sent to him by Mr. John A. Walker. This bird was a female, and apparently adult by the ovary, but the tibia had no red when the bird reached Mr. Witherby, though the bill appeared normally coloured for an adult. The upper parts were a darkish reddish brown, and the under parts pale brown with only a light tinge of slate. The white on the flank feathers and under tail-coverts was normal. In colour the bird was much like one of the so-called hairy varieties of the Moorhen, but the feathers were of normal structure.

Mr. Witherby's last exhibit was a primary feather of a Golden Eagle (*Aquila chrysaëtus*) which had been sent to him by Mr. J. A. Sidney Stendall. The feather had dropped from a large bird seen in Northern Ireland in 1930. Full details would be given by Dr. C. J. Milligan in the 'Irish Naturalists' Journal.' Mr. Witherby remarked that, owing to its distinctive size, shape, colour, and markings, the feather had undoubtedly belonged to a Golden Eagle and an immature bird. It could also be said that it was the seventh primary counting from the outer side of the wing. It was interesting to have this definite proof of the existence of a Golden Eagle in Ireland, as the bird was thought to be entirely extinct in that country in 1926.

Dr. Percy R. Lowe exhibited a male example of the Red-headed Bunting (*Emberiza icterica* Eversmann). He said that this particular specimen had been shot in North Ronaldshay, Orkney Islands, by Lt.-Colonel Eardley Todd, on June 19, 1931.

This constituted the first record of this species known to ornithologists that had ever been taken in the British Isles. Colonel Eardley Todd had kindly presented the bird to the British Museum of Natural History in order that it might be preserved in perpetuity. An account of its capture and systematic status appeared in 'British Birds' in August (British Birds, xxv. 1931, pp. 66–69).

Dr. Percy Lowe also exhibited a specimen of a hen Grouse (*Lagopus scoticus*). He said that this Grouse, shot at Lochaweside, Argyllshire, had been determined by Lt.-Colonel Harold

Thorpe, by whom it had been shot, as a hybrid between a cock Grouse and a Grey-hen.

It had been sent to the Museum for inspection, and there Dr. Lowe had not been able to discover a single Grey-hen character in its "make-up," except that on the outer web of the outermost primary there was some mottling not unlike that of the Grey-hen. This, however, was often present in young Grouse. Dr. Lowe said that in the British Museum Collection (Reg. no. 1900.10.31.1) there was a specimen of a hen Grouse shot in Stornoway in the Hebrides on October 30, 1900, by Mr. R. McD. Hawker, which was almost an exact counterpart of the specimen owned by Colonel Thorpe.

In the British Museum there was another specimen "picked up dead" in Ayrshire, and presented by the Editor of 'Land and Water' (Reg. no. 1887.5.14.1), which was moulting into summer (breeding) plumage and still showed the winter plumage on the lower breast and abdomen. The summer plumage of this specimen was practically identical with the plumage of Colonel Thorpe's bird.

No doubt the plumage in all three birds was of a somewhat light variety, and might possibly indicate that all three were of "Irish or Hebridean descent." The object of exhibiting Colonel Thorpe's bird was to obtain a verdict on the question of its being a hybrid or not. Dr. Lowe said he had already told Colonel Thorpe that in his opinion it was not a hybrid.

The bird was killed in September in summer plumage, and he suggested that some pathological factor had caused a retention of this and a delay in assuming the winter plumage *.

Lord Rothschild sent for comparison with Dr. Lowe's exhibit two Irish females and one Argyllshire female of *Lagopus scoticus*, as well as a male hybrid, *L. scoticus* × *Lyrurus tetrix*. He pointed out in a note accompanying the skins that the female exhibited by Dr. Lowe was only an extreme colour variety of the Grouse, and that both the male and the female hybrids of Grouse and Blackcock were always much larger and showed the naked toes of the *Lyrurus*.

* After the bird was examined by the members of the Club, the unanimous verdict was that it was a Grouse and not a hybrid.—Ed.

Mr. Shore Baily exhibited a clutch of eggs of the Harris-Sparrow (*Zonotrichia querula*) from his aviaries. These were, he believed, the first eggs of this species that had been seen in Europe. His friend Prof. Rowan, of Edmonton, Alberta, sent him three pairs of these birds last autumn, and told him at the time that there were no authentic eggs known in any of the American collections, but he had since heard from him that eggs had been taken this year near Fort Churchill by an American collector. The nest mentioned above was built in one of Mr. Shore Baily's aviaries, in a depression of the ground. It was made of nettle-root and moss, and lined with fine grass. The eggs were greenish white, marked more or less all over with reddish brown, denser at the thicker end. A second nest was built in an evergreen bush about four feet from the ground. He did not discover this until the young were hatched, and as a result two young ones were reared for the first time in Europe. The Harris-Sparrow is a larger and handsomer bird than our own, and its habits are much more like those of the Hedge-Sparrow than the House-Sparrow. The eggs, it will be noticed, are not unlike those of the South American Song-Sparrows.

Measurements.—2·45×1·65, 2·25×1·70, 2·20×1·65, 2·50×1·60 mm.

Dr. P. H. Manson-Bahr exhibited, on behalf of Professor J. W. W. Stephens, F.R.S., a series of skulls of the Manx Shearwater (*Puffinus p. puffinus*) from the island of Skomer, South Wales, which had been scalped, presumably by Greater Black-backed Gulls (*Larus marinus*). Lockley, in his 'Dream Island,' p. 136, states that the remains of fifteen hundred birds have been found on Skokholm thus mutilated. It is difficult to understand how the Gulls skin the heads of these unfortunate victims so cleanly, for obviously the "pull" must be in a vertical direction, or it may be that two Gulls are concerned in the scalping of one victim, thus rendering a horizontal "pull" possible.

Miss C. M. Acland and Mr. H. M. Wallis said they had seen similar appearances in Puffins in the Scilly Isles and on Lundy.

Mr. Hugh Whistler forwarded the following note and description :—

The genus *Anthipes*, founded in 1847 by Blyth, with *Anthipes monileger* for type, was used by Oates in vol. ii. of the ' Fauna of British India, Birds,' to include five species (*Anthipes monileger*, *A. leucops*, *A. submoniliger*, *A. poliogenys*, and *A. olivaceus*) of very local non-migratory Indo-Malayan Flycatchers in which the sexes are alike. In vol. ii. of the new edition of the Fauna Mr. Stuart Baker accepts the inclusion of these five forms in the genus *Anthipes*, though he changed the grouping to two species with, respectively, three and two subspecies. At the same time he pointed out that the two species thus admitted were so different in habits, nidification, and colour-pattern that they might almost be placed in separate genera. By vol. viii. (p. 631) his opinion on this point had strengthened to the creation of a new genus, *Olcyornis* (type *Anthipes olivaceus* Hume), to mark the separation of *A. olivaceus* with its subspecies, *A. o. poliogenys*, from *A. monileger* with subspecies *A. m. leucops* and *A. m. submoniliger*. In the meantime Messrs. Kinnear and Robinson (Nov. Zool. xxxiv. 1928, p. 241) had emphasised the same distinction by placing *poliogenys* in the genus *Cyornis*, together with a new race, *saturatior*. They, however, considered *olivaceus* and *poliogenys* as specifically and, possibly, generically distinct.

One of the many interesting results of the Vernay Survey of the Eastern Ghats has been the discovery of a new form of resident Flycatcher closely allied to *poliogenys* and entirely justifying the inclusion of that bird in the *Cyornis* group, where Brooks originally described it (' Stray Feathers,' viii. 1879, p. 469 : Salbaree, Sikkim Terai).

A good series was obtained by the Survey.

The females and first-year males are identical in coloration. They closely resemble *Cyornis poliogenys*, differing only in the greyer tint of the upper parts, which is particularly marked on the crown and nape and sides of the head and neck. The adult male is distinguished by a bluish wash over the whole of the upper parts. This is pronounced on

the head and nape, and becomes a definite bright blue on the longer upper tail-coverts and outer webs of the tail-feathers.

Measurements :—

Six adult males : Bill (from skull) 15–16·5 ; wing 75·5–78·5 ; tail 60·5–67·5 ; tarsus 18–20 mm.

Six first-year males: Bill (from skull) 14·5–15·5; wing 74·5–78; tail 59–64 ; tarsus 18–20 mm.

Four females : Bill (from skull) 14–15·5 ; wing 70·5–74 ; tail 57·5–60 ; tarsus 18–19 mm.

Distribution. The upper Eastern Ghats of the Vizagapatam district, where the bird was very common and breeding at 3000–3500 feet in April and May. Males breed in both plumages.

It will be remarked that this interesting bird forms a connecting link between *Cyornis poliogenys poliogenys* with both sexes alike and brown, and the other members of the genus *Cyornis* with brown females and males in which black or blue predominates. I propose to name it

Cyornis poliogenys vernayi, subsp. nov.

Type, ♂ adult, no. V. 1527, March 12, 1930, Sankrametta, 3500 feet, Vizagapatam District, India. (Presented to the British Museum by the Bombay Natural History Society.) Brit. Mus. Reg. no. 1931.10.7.1.

Named after Mr. A. S. Vernay, whose generosity made possible the Eastern Ghats Survey carried out by the Bombay Natural History Society.

Dr. C. B. Ticehurst forwarded the following communication :—

In a paper "Sur quelques points de systématique et de nomenclature" (Alauda, ser. ii. ann. 2, pp. 257–9) Monsieur G. Démentieff has recently put forward the claims for recognition of two of Severtzow's names.

The first is the Asiatic Golden Eagle, for which he proposes that *Aquila daphanea* of Severtzow, 1888, antedates Menzbier, from whom it was quoted by Dr. Hartert (Vög. Pal. Fauna, p. 1091). *Aquila daphanea*, however, can never be used at all.

It was a *nomen nudum* of Hodgson, and as such was in Gray's Zool. Misc. p. 81. But Gray, in 1848, in the Catalogue of the Accipitres in the British Museum, made it a synonym of *chrysaëtus*, as subsequently did Horsfield and Moore (Cat. Birds. Mus. East Indian Coy.) and Jerdon (' Birds of India ').

The bird, no. 1539, described on p. 1091 of Vög. Pal. Fauna, being apparently without a name, I propose to call it

Aquila chrysaëtus hodgsoni, nom. nov.

Type, ♀ adult, Hazara, N.W. India, May 13, 1871. Capt. Unwin Coll. In Brit. Mus. Reg. no. 1873.9.15.6.

The second name proposed is *Falco œsalon* var. *alaudarius* for the bird now known as *F. œsalon insignis* Clark, but a reference to Dr. Hartert's work would have shown that this name, too, cannot stand, as it is preoccupied by *Falco alaudarius* of Gmelin.

Mr. Gregory M. Mathews sent the following description of two new subspecies of *Quoyornis* :—

Quoyornis leucurus mimika, subsp. nov.

Differs from *Quoyornis leucurus* (Gould), from Cape York, in being distinctly lighter grey on the back and in having the grey band on the chest less pronounced.

A single skin from Port Essington, from the Gould Collection, has a wing measurement of 76 mm. The typical form has a wing measurement of 86 mm.

Distribution. Mimika River, Dutch New Guinea.

Type in the British Museum, a male collected on March 22, 1911. Brit. Mus. Reg. no. 1911.12.20.1181.

He thinks that the *Pœcilodryas cinerea* of Sharpe (Cat. Bds. Brit. Mus. iv. March 26, 1879, p. 243) is also a subspecies of *Quoyornis*, and may be called *Quoyornis leucurus cinereus* (Sharpe).

Mr. Mathews also sent the following note :—

As the genus *Coleia* Mathews, 1912, is preoccupied by *Coleia* Broderip, 1835, it may be called *Colena*, and as the genus *Mathewsiella* Iredale, 1922, is pre-occupied by *Matthewsiella* Hetschko, 1913, it may be called *Pherocraspedon*.

Mr. W. L. Sclater forwarded for publication the following description of a new African Weaver :—

Ploceus [Symplectes] nicolli, sp. nov.

Whole of the crown and nape a rich golden brown, rest of the upper parts, including the wings and tail, rich sooty black, with a faint wash of yellow on the upper tail-coverts ; throat, foreneck, and sides of the face, including the ear-coverts, dark nigger brown ; this is followed by a patch of rich chestnut on the upper breast ; rest of the underparts, including the under tail-coverts, bright cadmium yellow ; under wing-coverts dark ashy grey, and lining of the quills rather dusky. Iris red-brown, bill black, feet chocolate-brown.

Length about 145 mm., wing 86 mm., tail 50 mm., bill 16 mm., tarsus 19 mm.

Type and only example a male (not breeding) from Amani, Tanganyika Territory, from plantations at 3000 feet, obtained 19. vi. 31 by R. E. Moreau. Collector's number 850. Brit. Mus. Reg. no. 1931.5.7.6.

Mr. Moreau wrote on June 22, 1931 :—" We have just got a Weaver here which beats me completely. The bird was the male of a pair that looked alike, and it was obtained just outside my office, *i. e.*, at the edge of the forest. We have seen the bird perhaps half a dozen times in the three years we have been here, and have always been puzzled by it."

As there was nothing in the least like it in the collections of the British Museum, I sent the skin to Dr. Stresemann, and asked him to see if there was anything like it in the Berlin Museum. He wrote back sending me the type of *Ploceus olivaceiceps*, a species described by Dr. Reichenow (Ornith. Monatsber. 1899, p. 7) from Songea, in south-western Tanganyika Territory, which has apparently remained unique up to the present time. Although not sexed by the collector, Fülleborn, Dr. Stresemann suggests that *olivaceiceps* may be the female of the Amani bird, but this is not borne out by Mr. Moreau's statement that the pair he observed were similar in plumage.

Briefly, the distinctions are as follows :—*P. olivaceiceps* has the crown, including the sides of the face and the whole of the back, green, more yellowish on the rump, the wings

and tail are dusky ashy, while below the general colour is the same as in the Amani bird, but not so bright, and the chestnut of the breast more restricted. It is also distinctly a smaller bird, wing 81 mm., and has a much shorter tail, 42 mm. against 50 mm.

Under the circumstances it seemed best to describe the Amani bird as a new species in the hope that later on it may be possible to clear up its relations to *olivaceiceps*. With regard to its general position among the Ploceine Weavers, I am inclined to place this bird in the subgenus *Symplectes* rather than in *Hyphanturgus* or *Xanthophilus*. Its general coloration and the shape of the bill seem to best fit it among the black-backed group.

It is at the special request of Mr. Moreau that this bird has been named after the late Mr. Michael John Nicoll, to whom he was much indebted for help and encouragement in the study of ornithology during his long residence in Egypt.

Mr. P. F. Bunyard made some remarks in reply to the Rev. F. C. R. Jourdain's criticisms upon his (Mr. Bunyard's) measurements of the eggs of the Greenland and Iceland races of the Snow-Bunting. (For this, *vide* Bull. B. O. C. li. 1931, pp. 112–14 and 126.)

NOTICES.

The next Meeting of the Club will be held on Wednesday, November 11, 1931, at PAGANI'S RESTAURANT, 42–48 Great Portland Street, W. 1. The Dinner at 7 p.m.

Members intending to dine are requested to inform the Hon. Secretary, Mr. C. W. Mackworth-Praed, 51 Onslow Gardens, London, S.W. 7.

Members who intend to make any communication at the next Meeting of the Club should give notice beforehand to the Editor, Dr. G. Carmichael Low, 86 Brook Street, Grosvenor Square, W. 1, and give him their MSS. for publication in the 'Bulletin' not later than at the Meeting.

Agenda for next Meeting.

1. Mr. E. C. Stuart Baker will give an account of his recent visit to Lapland and the birds met with there.
2. Mr. T. H. Harrisson will describe a visit to St. Kilda and discuss its ornithology.
3. Lord Rothschild will describe a new race of *Cypseloides*.
4. The Hon. M. Hachisuka will show a series of eggs of the Japanese Quail.

BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB.

No. CCCLIV.

THE three-hundred-and-forty-ninth Meeting of the Club was held at Pagani's Restaurant, 42–48 Great Portland Street, W.1. on Wednesday, November 11, 1931.

Chairman : Major S. S. FLOWER.

Members present :—Miss C. M. ACLAND ; W. B. ALEXANDER ; W. SHORE BAILY ; E. C. STUART BAKER ; F. J. F. BARRINGTON ; Miss M. G. S. BEST ; P. F. BUNYARD ; Hon. G. L. CHARTERIS ; H. P. O. CLEAVE ; Sir PERCY Z. COX ; Lt.-Col. A. DELMÉ-RADCLIFFE ; A. H. EVANS ; Miss J. M. FERRIER ; A. G. GLENISTER ; Hon. M. HACHISUKA ; Col. A. E. HAMERTON ; Dr. J. M. HARRISON ; T. H. HARRISSON ; R. E. HEATH ; Dr. E. HOPKINSON ; Miss D. HORDERN ; Dr. KARL JORDAN ; Rev. F. C. R. Jo ; N. B. KINNEAR ; Miss E. P. LEACH ; B. LLOYD ; Dr. G. CARMICHAEL LOW (*Editor*) ; Dr. P. R. LOWE ; Dr. N. S. LUCAS ; C. W. MACKWORTH-PRAED (*Hon. Sec. & Treas.*) ; Lt.-Col. H. A. F. MAGRATH ; Dr. P. H. MANSON-BAHR ; G. M. MATHEWS ; Dr. W. NORMAN MAY ; E. G. B. MEADE-WALDO ; A. H. MEIKLEJOHN ; Mrs. D. MICHOLLS ; J. L. CHAWORTH MUSTERS ; T. H. NEWMAN ; C. OLDHAM ; F. R. RATCLIFF ; Lord ROTHSCHILD ; Lord SCONE ; Major M. H. SIMONDS ; Major A. G. L. SLADEN ; C. G. TALBOT-PONSONBY ; MARQUESS of TAVISTOCK ; Dr. A. LANDSBOROUGH THOMSON ; W. H. THORPE ; B. W. TUCKER ; Miss E. L. TURNER ; H. M. WALLIS ; H. WHISTLER ; V. O. WILLIAMS ; H. F. WITHERBY ; C. DE WORMS.

Guests :—Miss M. Barclay ; P. W. T. Boughton-Leigh ; N. B. Coltart ; Miss E. J. Delmé-Radcliffe ; H. A. Evans ; Miss J. Evans ; Mrs. Flower ; H. A. Fooks ; A. B. Gillett ; Lady Constance Howard ; D. Lack ; A. Holte Macpherson ; C. J. L. Thurgar ; Mrs. B. W. Tucker ; E. G. Wishart.

Mr. E. C. Stuart Baker related some of his experiences in Lapland in 1931 and previous years, the lecture being illustrated by lantern-slides of the country and of various birds, nests, and eggs. Starting with a brief description of the present conditions of life and travelling in Lapland, he then gave a description of the nesting of some of the Waders and Passerine birds observed during his trip.

Among the more important observations referred to, he gave at some length those on the breeding of the little-known Holböll's Redpoll (*Acanthis linaria holboellii*), full details of which are being published later in ' The Ibis.' Commenting on the various Geese found in Lapland and Finland, he drew attention to the very different breeding-habits of the three species, *Anser anser*, *Anser fabalis*, and *Anser erythropus*. The first, the Grey Lag, is a very common bird, breeding all over a very large area in North Finland and South Lapland; but it appears to be confined to the areas under pine-growth. This Goose commences to breed at the end of April and by the time the snow is beginning to melt in North Finland the majority of the birds have already laid. The full clutch, which may be anything from three to six, or, rarely, seven eggs, is complete by the first week in May, sometimes even earlier, and the young are mostly hatched by the end of the month. All the nests observed were in dense forest consisting of pine and birch, with a thick undergrowth of bracken, juniper, and wortleberry, growing for the most part in swamp, the nests being placed on hummocks above the wet or, occasionally, amongst rocks and boulders on slightly higher ground. The nests actually seen were all within half or three-quarters of a mile of open water, but the Finns said that they were sometimes found as much as three miles from any lake or open swamp. It was at the same time very noticeable that

however far they might be placed from any big water they were invariably situated within a very few feet of some little runlet or stream leading to a lake. It is by these little ditches that the goslings are led by their parents down to the open swamps, and the Finns say that in May, in the very early mornings, they often see a little procession of mother goose and goslings, guarded in the rear by the gander, wandering slowly down to the lakes. The Bean Goose breeds to the extreme limit of the birch-forest, whilst nests may also be found in the stunted birch-growth at the edge of the tundra, and more rarely in the thick salix- and juniper-growth actually on the southern tundra. Like that of the Grey Lag, the nest is always or nearly always in pretty thick cover, but the site of one nest which was pointed out in Petsamo was quite open. The Lesser White-fronted Goose is only met with in the open tundra, and both this bird and the Bean Goose breed whilst there is still deep snow on the ground. The site of one nest was pointed out which had been found by the fishermen simply because the hole in which it was placed showed up as a black spot in the vast white area of snow-covered tundra. By June practically every egg had hatched, but a clutch of six, very hardset, were seen on the 21st, and a clutch of four on the 13th of that month, on which latter date an empty nest was also found. The down of the Lesser White-fronted Goose suffices to distinguish its nest from that of any other bird; it is very dense and very dark, nearly always containing innumerable small black feathers from the abdomen and occasionally larger black-tipped feathers from the flanks. In the nests of both the other Geese, black-tipped feathers are of course occasionally found among the down, but never to the same degree, whilst the feathers themselves have the black less in width and the down itself is much paler.

Another rare bird met with was the White-billed Northern Diver (*Colymbus adamsii*), and the speaker also described at some length the breeding of the Bar-tailed Godwit (*Limosa lapponica lapponica*). Dr. Hortling, a Professor of Helsingfors University, accompanied Mr. Stuart Baker on his last trip, and an article under their joint authorship is shortly appearing in ' The Ibis.'

Mr. T. H. Harrisson described a visit to St. Kilda in 1931 :—

The St. Kilda group of islands—lying some fifty miles outside the line of the Outer Hebrides—have always been of particular interest to zoologists by reason of the presence of four notable island forms, the St. Kilda Wren (*Troglodytes t. hirtensis*), Soay Sheep, St. Kilda House-Mouse (now almost extinct), and St. Kilda Field-Mouse. The first British and third known Leach's Fork-tailed Petrel (*Oceanodroma leucorhoa*) was taken there by Bullock in 1818 ; the species is now far more abundant than on North Rona or the Flannans, although as many as 400 eggs have been taken for collectors and tourists in one year. Prior to 1880 this was the only British nesting-place of the Fulmar Petrel (*Fulmarus glacialis*), once the staple item of the islanders' diet, and most excellent eating. By a series of cliff counts and section transacts I estimated that there were about 25,500 pairs breeding in 1931. Boreray, Stac Lee, and Stac an Armin claim the largest colony of Gannets (*Sula bassana*) in the world, first described in 1698 by the delightful pen of Martin Martin. Gurney estimated 30,000 birds, but I found only 21,300 in 1931, and I believe Gurney's figures are based on an exaggerated estimate of the Boreray sub-colony. The islands were one of the last strongholds of the Great Auk (*Alca impennis*) ; one of the three known British specimens was captured there in 1821 or 1822, while there is strong evidence that another was killed as a witch by one Lauchlan Mackinnon about 1840. Two new birds for Britain have also been obtained, a Subalpine Warbler (*Sylvia cantillans*) shot by J. Steele Elliot on June 14, 1884, and an American Water-Pipit (*Anthus spinoletta rubescens*) captured by Dr. W. Eagle Clarke on September 30, 1910.

This long list of exciting features singles out St. Kilda as the most interesting of all the islands in Britain, even in Europe. The interest has been further intensified by the compulsory evacuation of the natives in September 1930, and the subsequent uncertainty as to the future of the mammals and birds. It was with the object of making an immediate investigation on the present condition of the fauna and flora, just under a year after the evacuation, that a party of six

Oxford and Cambridge undergraduates paid a visit from July 22, to August 14, 1931, with the permission and support of Sir Reginald Macleod of Macleod, the late owner. This party included a geologist (M. Stewart), botanist (C. P. Petch), mammalogist (J. Moy Thomas), entomologist (D. L. Lack), and two ornithologists (J. Buchan and myself). Lack also helped with the ornithological work, and assisted in taking a bird census, before turning to the study and collection of insects.

It is my intention here to summarise the ornithological results of this expedition as briefly as possible. But first I must explain that we travelled up on a small passenger and cattle boat—the 'Hebrides,'—and were called for, nearly a month later, by the 'Dunara Castle.' We lived in one of the deserted houses, rapidly going to pieces, and fed on provisions brought from the mainland, augmented by sheep, lobsters, fish, and (greatest delicacy of all) Fulmars. The weather throughout was quite good, though there was much mist and rain, often with a strong north wind. I wish that I had time to tell you more about our actual stay on the island, for it was not without incident and adventure; but I must confine my whole attention to the birds.

The first part of our time was devoted to taking a census of all the land-birds on Hirta (the main island), rather over 1500 acres. This proved extremely hard work, partly because of the very steep hillsides (rising to over 1000 feet in many places), and partly because of the mist which constantly enveloped the high ground. Moreover, it was necessary to work the large area of cliff, including Conachair—the highest cliff in Britain. Stewart and I also managed to effect a landing on all the other islands of the group, including Soay, and I was able to take bird counts on these, thus making the census complete.

Though it *was* hard work, we managed to obtain what we consider to be reliable results, and from these some interesting facts emerge. We found a total of twelve land species represented by 288 pairs, of which over half were Rock-Pipits and just under a quarter St. Kilda Wrens. The total average density was one adult to 3·75 acres. The Starling (*Sturnus vulgaris*)

was represented by only nine pairs on Hirta, as compared with several hundreds prior to 1930, this decrease being almost certainly due to the removal of all but a dozen domestic sheep (there were previously about a thousand). The Starlings apparently fed largely on ticks and dung-beetles, as they do on North Rona, which has been uninhabited for eighty years, but had two hundred sheep and four hundred Starlings in September 1931.

Tree-Sparrows (*Passer montanus*) were represented by but a single bird, which disappeared early in August. Yet for many years past the species has been common, though confined to the village area, so that their absence must surely be due to the departure of the natives, and with them all the tit-bits of rubbish upon which the Sparrows fed. There has been a big drop in the number of Hooded-Crows (*Corvus cornix*), from about fifty pairs in 1925–1930 to five pairs in 1931. As might be expected Twite (*Acanthis flavirostris*) and Wheatear (*Œnanthe œnanthe*) have remained steady at about a dozen pairs each.

The distribution of the Rock-Pipit (*Anthus spinoletta*)—the dominant Passerine—was most curious, for it bred all over the cliffs, the hillsides, the " cleits," and the village, to the exclusion of all but six pairs of Meadow-Pipits (*Anthus pratensis*). In my limited experience I have never before known Rock-Pipits to nest more than a few yards from the sea ; on St. Kilda pairs were breeding in the very centre of the island and at an altitude of over 1300 feet. I shall be most interested to hear if other members of this club know of any similar cases, for these seem to me to throw much light on the past and present distribution of the species.

The status of the St. Kilda Wren (*Troglodytes t. hirtensis*), first described by Seebohm in 1884, and almost exterminated by collectors by 1888, is of primary interest. From the remnant which were saved—largely owing to the initiative of Sir Herbert Maxwell—the race gradually regained a sound footing. In 1931 we found sixty-eight pairs, of which forty-five were on Hirta, eleven on Dun, nine on Soay, and three on Boreray. Owing to the difficulty and danger of landing on the last two of these islands, it is doubtful if the species

will again be threatened with extinction ; but your attention should be called to information which has reached us on the highest authority to the effect that there was a regular traffic in Wren's eggs even up to 1930. I know one gentleman who was asked £5 for a clutch, 7*s.* 6*d.* for a single egg. That so deceitful a trade should have become an established routine augurs ill for the future of the birds if certain persons can find a way of reaching the islands during the next few years.

We were interested to find that the Wrens exhibited a marked dimorphism, with light and dark forms often very distinct in the field. This is clearly demonstrated in some of our photographs, and has not previously been recorded. Three nestlings examined were remarkable for the absence of an occipital down tract as found in the mainland form. The statement in Witherby's ' Practical Handbook of British Birds,' i, p. 496, that these birds " probably . . . pick up small crustacea from the shore " is quite misleading, for the species is almost entirely cliff-feeding. The song we found noticeably finer and less bubbling than that of the Common Wren.

One pair of Rock-Doves (*Columba livia*) and five of Common Snipe (*Capella gallinago*) complete the list of breeding land-birds. Curlew (*Numenius arquata*) were present throughout our stay, and later we obtained good accounts of the birds and their nests from two old natives. Although this species is believed to have bred on North Rona, only the Whimbrel (*Numenius phæopus*) has been strongly suspected of nesting on St. Kilda, despite Dixon's evidence of two pairs of Curlew breeding in 1884. No Whimbrel were present in 1931.

The enormous colonies of sea-birds cannot be greatly affected by the evacuation, though some—such as the already swarming Puffin (*Fratercula arctica*)—may increase still further now that sea-fowl are no longer snared for food. Razorbills (*Alca torda*) were remarkably scarce, and there cannot have been more than a hundred pairs ; previous visitors have noted it as abundant. An interesting find was a breeding pair of British Lesser Black-backed Gulls (*Larus fuscus graellsii*), only satisfactorily recorded on one previous occasion. That this species should be so scarce on St. Kilda, yet common

on Rona, the Flannans, and the main Outer Hebrides, is surely puzzling.

Of other interesting species I should mention Storm-Petrel (*Hydrobates pelagicus*), Manx Shearwater (*Puffinus puffinus puffinus*), and a few Black Guillemot (*Uria grylle grylle*) and Eider (*Somateria mollissima*).

We left before the autumn migration had really begun, but we noted White Wagtail, Heron, Kestrel, Red-breasted Merganser, Sanderling, Dunlin, Common Sandpiper, Redshank, Arctic Tern, Common Gull, and others.

St. Kilda, now the property of Lord Dumfries, is once more uninhabited. One can only hope that it will remain so, and that ornithologists will respect its sanctity. At intervals of one to five years properly organised scientific expeditions should be allowed to visit the islands, in order to investigate changes in the fauna and flora ; but the interference of individuals can only have damaging consequences. At the request of the owner we shot several cats left behind by the islanders, lest they multiply and become a scourge. The wild Soay sheep is still abundant on Soay, and there are many domestic sheep on Boreray ; but only a handful remain on Hirta, where the flora will thus revert to a natural state.

The changes which must undoubtedly follow the removal of man and all his agents should prove one of the most interesting studies ever open to naturalists, and I sincerely hope that neither prejudice nor mismanagement will be allowed to spoil so great an opportunity.

Lord Rothschild described a new race of *Cypseloides* :—

Cypseloides fumigatus major, subsp. nov.

Differs from *C. fumigatus fumigatus* in its larger size and paler, more mummy-brown, *not* black-brown, coloration. It also differs in the much lighter grey-brown throat and in the whole crown and forehead having a scaly appearance, due to the pale edges of the feathers ; in *C. f. fumigatus* only the forehead shows this scaly appearance.

Length of wing, *C. f. fumigatus*, 142 mm.

„ „ *C. f. major*, 152 mm.

Habitat.—♂ type, no. 1473, Tucuman, Argentina (Dinelli Coll.).

Lord Rothschild exhibited and described two hitherto undescribed eggs :—

Pseudorectes ferrugineus brevipennis (Hartert).

Egg long, narrow, oval, almost equal at both ends ; ground-colour purplish-cinnamon with large scattered spots of purplish-chocolate, with slight underlying spots and a clouding of sooty bluish-grey. Measurements, 38×23 mm. and 37×24 mm.

Habitat.—Wanumbai, Aru Islands, Nov. 1930 (W. J. C. Frost leg.).

Paradisea rubra Daudin.

Egg similar to those of *Paradisornis rudolphi* Meyer, but more sharply narrowing towards the smaller pole ; ground-colour pale cinnamon-pink with longitudinal splashes of crimson-rufous, with underlying streaks of grey. Dimensions, 38×25 mm.

Laid in captivity with four others in Captain T. A. Hone's aviary, at Highways, Bellingdon, Chesham (Bucks).

The Hon. M. Hachisuka exhibited a series of eggs of the Japanese Quail :—

The Japanese Quail (*Coturnix coturnix japonica*), he said, had long been domesticated in Japan for the purpose of laying eggs, which are used for food. It is not rare to find a hen laying more than two hundred eggs in a year. The birds are kept separately in a special Quail cage, about 10 inches square, and are never put together in an open aviary, which is practically the only method of breeding game-birds, even such small-sized ones as the Painted Quail (*Excalfactoria chinensis*).

Prince Taka Tsukasa has given a detailed account of this breeding in the ' Avicultural Magazine ' for 1921, p. 24.

The first stage of variation which has occurred since the domestication is the appearance of albinism. The White Quails with blue eyes (albino Pheasants and Peafowls have always blue eyes) are just as strong and good layers, however, as the normal birds, and not delicate and poor layers as in the case of *Phasianus*.

A marked difference in the size of the Quail is not found, although some individuals attain large size. It is strange that its call-note is much prolonged, this being due to strong artificial selection, as the Japanese value a cock with a long and loud cry. In this connection he said he should like to mention a breed of Japanese Fowl called Totenko, remarkable for its prolonged call-note, which is as peculiar in this respect as the appearance of the Long-tailed Fowl (sometimes called the Yokohama Fowl or Chabo).

Above all the variations found in the Quail itself their eggs show a large range of different colouring both in shade and pattern.

The commonest type may be called the blue-grey type, caused by an excessive deposit of lime, and somewhat like the eggs of the Arctic Tern. Next comes the yellowish type, with heavy blotches of dark brown; this is the only type of *Coturnix* egg found in the wild state. Any other types are rather uncommon, though one may find thickly pigmented eggs in dark brown. Albino hens produce generally pale-coloured eggs which are white or pale bluish with bluish markings.

The size and weight of the eggs are on an average larger and heavier than those of the wild birds.

The eggs shown to-night were representative of a series found in a shop in Tokyo, and had been presented to the British Museum.

Mr. H. M. Wallis exhibited a series of walnuts pecked by Rooks, and read the following note :—

I have a walnut-tree in my garden which bears freely most years, and is annually pillaged by Rooks.

Apparently the transport of the nuts is a difficulty ; either the gape of a Rook is not sufficiently wide to afford a firm hold, or the beak is too narrow. I have yet to see a Rook hold a nut *in* its beak, *except by the tips* of its mandibles. To get a firm grip the birds cut through, or strip off the outer green husk and hammer two holes through the shell. Always both holes are at one end or other of the nut, and always one in each half—never both in one shell. They are never far apart ; usually within half-an-inch.

The nut, when thus pierced, is no longer I believe attacked, but is held firmly by the points of the mandibles, and away goes Rook and nut. "Holing" is neither easy nor certain, for a very large proportion of the nuts escape from the grip, either of foot or beak, and fall. I do not find a fallen nut is usually further meddled with. To do so might be dangerous. To my knowledge four, if not more, cats have the run of my garden. I have picked up on one day over one hundred fallen nuts, of which as many as 91 per cent. were holed as I have described. On other days the proportion was as low as one holed in two or three.

I have found only two (at most) which had been split into two shells and pecked after falling, as shown by fragments of kernel lying around them. To get this form of food the Rooks have to watch and inspect the ripening nuts, and only attack them when the green jacket is blackening and loosening. Obviously the fact that my tree is available is traditional, and some old Rook probably guides the young draft .

Whilst under the tree I have repeatedly found nuts falling, and found in some cases the nut still in its jacket, which was frayed, and the nut either pierced or showing marks of pecking.

I have never seen a rat in my garden, and only on one occasion a grey squirrel.

Mr. C. Oldham showed the following exhibits from St. Kilda :—

(*a*) Specimen of the amber-red oil obtained from the Fulmar, formerly used and exported by the St. Kilda folk for burning in lamps and as a smear for sheep.

(*b*) Noose of plaited horse-hair stiffened by split quills of Gannet, which, attached to a rod, was used for snaring Fulmars, Puffins, and other birds.

(*c*) Puffin snare. A hempen line of 5 feet (each end of which was secured to a heavy stone) with 28 horse-hair nooses at intervals.

(*d*) Piece of $\frac{3}{4}$-in. horse-hair rope, used by climbers until superseded by ropes of manilla-hemp.

Described and (*b*) figured in Macpherson's 'History of Fowling.'

Mr. C. Oldham also exhibited a Corncrake-call, a device consisting of a wooden ratchet-wheel of 1½ in. diameter. The engagement of the pawl with the ratchet when the instrument was drawn across the thigh of the performer reproduced faithfully the rasping " airp, airp " of a Corncrake, and in the Midlands and the north of England the call was used to lure the birds to their destruction in the spring. A similar instrument is described and figured in Macpherson's ' History of Fowling ' (p. 426).

Mr. Hugh Whistler forwarded the following descriptions of new subspecies of Red-whiskered Bulbuls from India :—

Otocompsa jocosa abuensis, subsp. nov.

Differs from *O. jocosa fuscicaudata* Gould (which has no white tips to the tail-feathers) in its extremely pale coloration, both above and below, and in having the pectoral gorget narrow, pale in colour, and broken in the centre.

Distribution. Mt. Abu and the neighbouring areas of Rajputana (Ajmere : Nasirabad).

Type, ♂, 29. 4. 1868. Mt. Abu. Brit. Mus. Reg. no. 1886.9.1.2519.

Otocompsa jocosa provincialis, subsp. nov.

Differs from *O. jocosa emeria* (Linnæus) (which has white tips to the tail-feathers) in the pale coloration of the upper parts, which are almost but not quite as pale as in *O. j. abuensis*.

Distribution. Valley of Nepal, United Provinces, and Bihar.

Type, ♂, 24. 3. 1871. Kumaon Bhabar. Hume Collection. Brit. Mus. Reg. no. 1886.9.1.2386.

Mr. Hugh Whistler also forwarded the following description of a new race of Fantail-Flycatcher obtained by the Vernay Eastern Ghats Survey :—

Leucocirca pectoralis vernayi, subsp. nov.

Is easily distinguished from the typical form (Nilgiris) by the far broader pectoral band, which is also continued downwards as an extensive dark wash on the flanks.

The white spots on the pectoral band are much reduced, both in size and number, and they are mostly confined to the posterior edge of the band. The upper parts are slightly paler and browner in tint. The fulvous wash on the abdomen is darker, and the lateral tail-feathers are also washed with fulvous.

Distribution. Confined to the Upper Eastern Ghats (Anantagiri, Sankrametta, Jeypore Agency), Madras Presidency, India.

Measurements.—

5 ♂. Bill from skull 13·5–15·5 ; wing 72–81 ; tail 93–104·5 ; tarsus 18–19 mm.

3 ♀. Bill from skull 13–13·5 ; wing 70–73·5 ; tail 88–96 ; tarsus 18–18·5 mm.

Type, no. V. 1730, ♂, 26. 4. 1930. Jeypore Agency, 3000 feet, Upper Eastern Ghats. Presented by the Bombay Natural History Society to the British Museum. Brit. Mus. Reg. no. 1931.10.7.2.

The Hon M. Hachisuka forwarded the following description of a new subspecies of Bittern :—

Botaurus poiciloptilus mathewsi, subsp. nov.

This new race has the colour of the back nearly as dark as the Australian form *B. p. poiciloptilus*, but it is decidedly darker than *B. p. maorianus* from New Zealand. It is noticeably lighter on the forehead, and around the upper mandible it is almost light brown. The legs are not so thick and the tarsus is decidedly shorter, 90–95 mm., while the Australian and New Zealand forms measure about 115 mm. Three specimens examined ; named after Mr. G. M. Mathews.

Type in British Museum, adult ♂. Noumea, New Caledonia, December 2, 1881. Brit. Mus. Reg. no. 1894.1.20.79.

NOTICES.

The next Meeting of the Club will be held on Wednesday, December 9, 1931, at PAGANI'S RESTAURANT, 42–48 Great Portland Street, W. 1. The Dinner at 7 p.m.

Members intending to dine are requested to inform the Hon. Secretary, Mr. C. W. Mackworth-Praed, 51 Onslow Gardens, London, S.W. 7.

Members who intend to make any communication at the next Meeting of the Club should give notice, as early as possible, to the Editor, Dr. G. Carmichael Low, 86 Brook Street, Grosvenor Square, W. 1, so that the titles of their contributions may appear on the Agenda List. All MSS. for publication in the 'Bulletin' must be given to the Editor before or at the Meeting.

Agenda.

1. Major Stanley S. Flower, Chairman of the Club, will give his Annual Address. His subject will be the Longevity of Birds.
2. Mr. D. Bannerman will make some remarks on the Migration of Birds through the Canary Islands.
3. Mr. W. L. Sclater will exhibit a nest of a Swift from Trinidad and portraits of Levaillant.
4. Dr. P. R. Lowe will exhibit a specimen showing hybridism between a Pheasant and a Blackcock.
5. Mr. H. Whistler will show a Scarlet Finch (*Hæmatospiza sipahi*) illustrating colour changes developing in captivity.
6. Mr. P. F. Bunyard will exhibit a book, 'Eggs of Finnish Birds,' drawn and coloured by G. Sundman.

BRITISH MUSEUM
NATURAL HISTORY

Bird Room.

BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB.

PURCHASED

No. CCCLV.

The three-hundred-and-fiftieth Meeting of the Club was held at Pagani's Restaurant, 42–48 Great Portland Street, W.1, on Wednesday, December 9, 1931.

Chairman : Major S. S. Flower.

Members present :—Miss C. M. Acland ; W. B. Alexander ; W. Shore Baily ; E. C. Stuart Baker ; D. A. Bannerman ; F. J. F. Barrington ; Sir John Rose Bradford ; P. F. Bunyard ; Col. Stephenson R. Clarke ; H. P. O. Cleave ; Lt.-Col. A. Delmé-Radcliffe ; A. H. Evans ; Miss J. M. Ferrier ; A. G. Glenister ; Hon. M. Hachisuka ; Col. A. E. Hamerton ; Dr. J. M. Harrison ; T. H. Harrisson ; R. E. Heath ; Dr. E. Hopkinson ; Miss D. Hordern ; Dr. Karl Jordan ; Rev. F. C. R. Jourdain ; N. B. Kinnear ; Miss E. P. Leach ; Dr. G. Carmichael Low (*Editor*) ; Dr. P. R. Lowe ; C. W. Mackworth-Praed (*Hon. Sec. & Treas.*) ; Lt.-Col. H. A. F. Magrath ; Dr. P. H. Manson-Bahr ; G. M. Mathews ; A. H. Meiklejohn ; J. L. Chaworth Musters ; T. H. Newman ; C. Oldham ; B. B. Osmaston ; C. B. Rickett ; B. B. Rivière ; W. L. Sclater ; D. Seth-Smith ; C. G. Talbot-Ponsonby ; Dr. A. Landsborough Thomson ; Dr. C. B. Ticehurst ; B. W. Tucker ; Miss E. L. Turner ; V. O. Williams ; H. F. Witherby ; C. R. Wood ; C. de Worms.

Guests :—Miss E. J. Delmé-Radcliffe ; Mrs. Flower ; Miss L. S. Flower ; Samuel Hordern.

Chairman's Annual Address.

Part I.—Review.

Major Stanley S. Flower said :—

Ladies and Gentlemen,

During 1931 we have lost by death one member of the Club—Joseph Parker Norris—who died in Philadelphia in January, and we cannot let this annual occasion pass without recalling the names of two others of our friends, who, though not actually members of this club, have attended these meetings and, in their respective spheres, have helped in the advance of the study of birds.

John G. Millais died on the 24th of March. His charming and beautiful books and sketches remain for all time.

Arthur J. Goodson died on the 5th of October. He had worked for about 38 years in the bird-room of Lord Rothschild's Museum at Tring.

The pages of 'The Ibis' and the 'Bulletin' give a permanent record of many journeys and much work accomplished by members of the Union and the Club, and these are supplemented by the interesting papers that appear in 'British Birds' and in the 'Oologists' Record,' while the 'Zoological Record' gives a comprehensive list of the world's ornithological literature of the year.

To avoid repetition, only brief mention will be made now to eight other ornithological results, selected to emphasize the wide range of bird-lovers' studies, which have appeared in publications other than those already named, and which have not been included so far in 'The Ibis' section entitled "Recent Ornithological Publications."

First, the presidential address given by Einar Lönnberg to the 7th International Ornithological Congress at Amsterdam in 1930, which was published in July this year. Then the excellent plea for the Corn-Crake by Walter Collinge, which I hope may be read and acted on by land-owners and farmers, and the practical advice on how to protect birds and increase their numbers on road-sides, cemeteries and golf-links, by W. L. McAtee.

In 34 pages of the Transactions of the Herts Natural History Society Charles Oldham has incorporated many interesting facts and observations on local names, folk-lore, protection, persecution, and occurrence of British birds and mammals.

Lord Rothschild has given us another important paper on the identification of Cassowaries, and in a later number of the ' Novitates ' a review, by W. Meise, has appeared of the Indo-Australasian Flycatchers of the genus *Gerygone*.

Franklin Metcalf's study of the foods of wild ducks is an example of another branch of ornithology, and I would like to call attention to a letter by Hugh Whistler to the editors of the Journal of the Bombay Natural History Society, and to endorse his prayer that writers should use binominal names *unless* they have definite reasons for employing trinomials.

Part II.—On the Longevity of Birds.

On the 8th of April, 1931, Dr. P. H. Manson-Bahr (1931) exhibited to this Club a stuffed female Senegal Yellow-fronted Canary, *Serinus mozambicus caniceps*, that had lived in a cage in London from at least 1913 to this year, and recently H. Whistler (1930) has mentioned a male Sepoy or Scarlet Finch, *Hæmatcspiza sipahi*, that was in captivity in England from 1907 to 1927. In neither case was the complete age of the bird known, but Frau Daempfle's Garden-Warbler, *Sylvia borin*, was taken as a nestling and came to the post-mortem table nearly 24 years later, when, as L. Martin (1878) has recorded, neither externally nor internally could any sign of senescence be found. These are instances to show that even small birds are " long-lived," but there are two kinds of longevity.

It is a matter of common knowledge that among the higher mammals individuals may go on living for years after their powers of reproduction have ceased; but fish, so C. Tate Regan has told me, are never known to be too old to breed.

So these kinds of longevity are :—

1. Still capable of breeding, a longevity useful for the perpetuance of the species.

2. Too old to breed, a longevity that only concerns the individual.

Among birds in captivity the evidence appears to point to the fact that, like mammals, birds can live on into a non-breeding old age. But does this occur among wild birds ?

Examination of the gonads may show certain individual wild-killed birds permanently non-breeding, but it might be difficult to prove whether this was the result of senescence or of some pathological cause.

In fishes and amphibians it is possible that want of opportunity to breed may prolong life to beyond its normal length—the individual may not die until it has performed its duty in propagating its species.

In mammals no such thing happens : I do not know whether it does or does not in birds, but a fact that is very certain is that old mammals always show obvious senility, whereas healthy birds go on looking and behaving exactly the same from year to year. Of individual birds that have lived in my care for periods of from over twenty to twenty-five years I was unable to notice any change of appearance or manners in representatives of several different families.

Longevity can be divided also into specific longevity and potential longevity, as indicated by E. Ray Lankester (1870) and explained by P. Chalmers Mitchell (1911). In the case of human beings the *specific* longevity, that is, the expectation of life, is about fifty years, while the *potential* longevity is a little over one hundred years.

Comparative longevity has interested mankind for centuries. A popular source of error in assigning great longevity to wild animals arises from want of knowledge of the fact that individuals of many species of mammals, birds, reptiles, amphibians, and fishes are sensible to the value of a favourable "pitch," either for procuring food, for nesting, or for resting. J. H. Gurney (1899, p. 27) pointed out that the fact of a Vulture, or a Raven, having frequented one secure precipice for a quarter of a century, without any others of the same species being seen, was no proof that it was always the same individual. George Jennison (1918) called attention to "the fact that a good nesting pitch will always find a successor when the sitting tenant is dispossessed." Most of us can recall from our personal experiences instances of places inhabited by

a single pair of some species of bird, whether a Hedge-Sparrow or a Falcon, and, one of the pair being killed, how quickly its place is filled—and again there is just the one pair there.

It is of interest to recall the old statements of comparative longevity as some people prefer them to results obtained by such modern methods as " ringing " or " banding," or keeping birds in captivity. That which may be termed the southern statement, attributed to Hesiod in the 8th century B.C., has been rendered in English :—

> " To ninety-six the life of man ascendeth,
> Nine times as long that of the Chough extendeth,
> Four times beyond the life of Deer doth go,
> And thrice is that surpassed by the Crow."

The northern statement as quoted, in German, by E. Friedel (1879) is : " A Wren lives three years, a Dog to the age of three Wrens, a Horse to three Dogs, a Man to three Horses, a Donkey to three Men, a Goose to three Donkeys, a Crow to three Geese, a Stag to three Crows, and an Oak Tree to three Stags."

The Faroe variant, quoted by J. H. Gurney (1899, p. 28), is : " A human being lives as long as three Horses, a Crow as long as three human beings, but a Raven as long as seven Crows."

It is hardly necessary to say here that loss of feathers, or the assumption of white feathers, are not necessarily signs of old age in birds. Loss of memory has been cited as a proof of old age in Parrots.

The marking of individual birds was for many centuries simply a convenient method of showing the ownership of a bird, especially of such valuable birds as Swans and Falcons. The idea of marking nestling wild birds so as to be able to trace their subsequent history appears to have occurred to a few people early in the nineteenth century, and to have been practised by even fewer. Suitable material for the rings was a difficulty. Early in the final decade of the last century the Duke of Northumberland was having young Woodcocks ringed at Alnwick, and F. R. Falz-Fein was marking birds bred on his Ascanea Nova estate in southern Russia, but

systematic bird-ringing on a large scale may be considered a product of from 1910 onwards. Already we are gaining useful information, and can look forward to much valuable knowledge from this source in the future.

An instance that may be mentioned now is that of the Sandwich Tern, *Sterna sandvicensis*. Terns are rare in captivity ; so far as I know it takes an experienced aviculturist to keep one alive for even two or three years, but H. F. Witherby (1931, p. 77) has proved that they are not short-lived by recording a Sandwich Tern, ringed in Cumberland 12th June, 1917, being recovered in South-West Africa 23rd February, 1931, 13 years 8 months 11 days later.

Another instance is the Woodcock, *Scolopax rusticola*. Two records of ringed birds of twelve years show that it can attain more than twice the maximum age that is known for it in captivity, while with the Lapwing, *Vanellus vanellus*, the two methods of finding longevity are about equal, ringed birds being known of 11 and of 12 years and menagerie specimens of 12, 13, and 14 years.

On the other hand, E. C. Hoffman (1929) says of the Blue Jay, *Cyanocitta cristata*, from North America, that its " average life seems to be less than two years, and only about three in a hundred apparently live long enough for a fourth nesting." Of the few records that I have of this species in European Zoological Gardens there is one bird left alive after six years and another of over eight years.

A most interesting feature of ringing is the recovery of the same individual bird on many occasions, such as the Robin, *Erithacus rubecula melophilus*, recorded by H. F. Witherby (1931, p. 50) at Broughty Ferry, Angus, which has been recovered twelve times already.

There *are* very short-lived vertebrates : among fishes, three species of Gobies, belonging to three genera, are known to be " annuals," all the adults of one generation having died before the next generation grows up, and, among mammals, the recent researches of L. E. Adams (1930) and A. D. Middleton (1931) appear to prove the already suspected fact that the Shrew, *Sorex araneus*, in England is an " annual " species. So far no " annuals " have been found among amphibians,

reptiles, or birds. In fact we have no evidence that there is such a thing as a really short-lived bird, that is to say, that there is any species of bird whose individuals have a *potential* longevity of less than six years.

Turning to very long lives, we know definitely, of fishes, that Capt. J. A. M. Vipan has, living in his private aquarium at Stibbington Hall, two Sterlets, *Acipenser ruthenus*, that were given to him by the Czar of Russia 8th October, 1888, 43 years ago, and that the Duke of Bedford has at Woburn two Sheatfishes, *Silurus glanis*, that were brought there in 1874 and are now not less than 57 years old.

Of amphibians, even such very little animals as newts may prove to be long lived. On the 25th April, 1925, C. Oldham caught on Berkhamstead Common, Herts, and gave me, a female Smooth Newt, *Triturus vulgaris*, and a male Palmated Newt, *Triturus helveticus* ; these are both alive, 6½ years later. The Giant Salamander, *Megalobatrachus japonicus*, is one of the oldest of tetrapods : a fine specimen, which Lord Rothschild obtained early in 1890, is still alive at Tring after 41 years, and is believed to be about 60 years old.

Not much is known of the potential longevity of reptiles, but we know that some alligators have lived forty years and tortoises, of several species, to over a century, and a few to 150 or even 180 years.

Very few species of mammals reach, or exceed, 30 years, and the only species, besides man, that are known to exceed 50 years are the elephant and, in very rare cases, the horse.

Records of longevity in zoological gardens being kept by human beings are liable to error ; it is, therefore, of importance to be able to compare records kept by different people, by different methods, in different places and at different times. These records are being collated by me in systematic order in card-catalogue form. Already the results are encouraging, and increasing confidence can be felt in the averages calculated from these records as certain facts emerge and become definite—facts as to the periods of time that different species of birds will live in captivity. It can be proved that many birds reach, in comparison to their size, very great ages.

To Gurney's question (1899, p. 42): "Are birds of some families longer-lived than those of others?" a very definite answer in the affirmative can now be given.

The three orders of birds as to the longevity of which we know most are the Anseres, the Columbæ, and the Gallinæ, because the number of statistics for wild individuals in captivity runs into many hundreds, and for domestic breeds and races to untold thousands.

Of all the species of wild Partridges, Quails, Pheasants, Jungle-fowls, Peacocks, Turkeys, Guinea-fowls, Curassows, Guans, and Brush-Turkeys, that do so well in captivity, I have found records of only five species in which individual birds have lived to over 15 years, and of none exceeding 22 years of age.

Of Pigeons and Doves seventeen species lived to 15 years and three to 30 years or more, whereas of Swans, Geese, and Ducks fifty-eight species reached or exceeded the 15 years limit, and four to over 30 years.

Ravens and Swans are said to live to great ages (*cf.* Gurney, 1899, pp. 28 & 33), but, so far, I have failed to find evidence to that effect. The actual records available show that the Goldfinch, *Carduelis carduelis*, exceeds the Raven, *Corvus corax*, in longevity as a pet bird, and I have only one note of a Swan of any species having lived longer than a Goldfinch has in captivity. Dr. C. Emerson Brown has been so kind as to let me know (6th October, 1931) that a Trumpeter Swan, *Cygnus buccinator*, lived in the Philadelphia Zoological Garden from 11th December, 1895, to 26th May, 1925—29 years 5½ months. Some Geese have lived longer, but it is doubtful if any Duck ever lived longer than 27 years, that is to say, the extreme age of a little passerine bird like the Goldfinch.

It is unfortunate that neither Lankester in 1870, Gurney in 1899, Mitchell in 1911, or myself in 1925, when writing on the ages to which birds live, knew of a paper by Fitzinger, published in 1853, which is a mine of information on menagerie history, and the original source of many statements that have been published in various (and sometimes confused) forms concerning longevity.

A study of Fitzinger's work shows that it was compiled with great care, and I venture to think that we should accept his statements as to the three very old birds he mentions.

A female Golden Eagle, *Aquila chrysaëtos*, received at Belvedere, Vienna, in 1729 (not 1719 as printed on p. 34, see "Druckfehler," opposite p. 198), and kept there till 1781, when it was transferred to Schönbrunn, where it died in 1809, after about 80 years in captivity.

A male Egyptian Vulture, *Neophron percnopterus*, received in the Hof-Burg, Vienna, in 1698, and kept there till 1752, when it was transferred to Schönbrunn, where it died in 1799, after about 101 years in captivity.

A Griffon Vulture, *Gyps fulvus*, in captivity in Vienna from 1706, was at Belvedere from 1716 till its death shortly before 1824. This bird was never transferred to the Schönbrunn Menagerie, and Fitzinger was satisfied as to the fact that it lived in captivity for 117 years.

List of Literature referred to.

Part I.—Review.

1. Collinge, W. E.—The Food and Feeding-habits of the Land-Rail or Corn-Crake. J. Min. Agr. London, pp. 618–621, Sept. 1931.
2. Jourdain, the Rev. F. C. R.—Field-work of British Ornithologists in 1930. Oolog. Rec. London, 11, pp. 2–5, March 1931.
3. Lönnberg, Einar.—Proc. 7th Internat. Ornith. Congr. Amsterdam, 1930, pp. 6–28. Amsterdam, July 1931.
4. Low, G. Carmichael.—The Literature of the Charadriiformes from 1894 to 1928. London. Pp. i–xiii, 1–637, ed. 2, 1931.
5. McAtee, W. L.—Local Bird Refuges. U.S. Dept. Agr. Farm. Bull. 1644, Washington, D.C., March 1931.
6. Meise, Wilhelm.—Zur Systematik der Gattung *Gerygone*. Novit. Zool. Tring, 36, pp. 317–379, Sept. 1931.
7. Metcalf, Franklin P.—Wild-duck Foods on North Dakota Lakes. U.S. Dept. Agr. Tech. Bull. 221, Washington, D.C., March 1931.
8. Oldham, C.—Payments for "Vermin" by some Hertfordshire Churchwardens. Trans. Herts Nat. Hist. Soc. 19, part 2, pp. 1–34, Sept. 1931.
9. Pitman, C. R. S.—The African Woolly-necked Stork—and other Birds—in Uganda.—Oolog. Rec. London, 11, pp. 45–48, June 1931.

10. Rothschild, Lord.—A preliminary review of the Mooruk group of Cassowaries. Novit. Zool. Tring, 36, pp. 181–183, April 1931.
11. Sclater, W. L.—Zoological Record, vol. 67, 1930, part 15, Aves, pp. 1–97, including 1406 titles, Aug. 1931.
12. Whistler, H.—An Open Letter to the Editors. J. Bombay Nat. Hist. Soc. 35, pp. 189–195, June 1931.

Part II.—Longevity.

1. Adams, Lionel E.—Life-history of the Common Shrew. Proc. I. of Wight N. H. Soc. Newport, 1, pp. 638–640, 1930.
2. Fitzinger, L. J.—Versuch einer Geschichte der Menagerien des österreichisch-kaiserlichen Hofes. SitzBer. Akad. Wiss. Wien, March–April 1853.
3. Flower, S. S.—Contributions to our Knowledge of the Duration of Life in Vertebrate Animals.—4. Birds. P. Z. S. 1925, pp. 1365–1422, 1926.
4. Friedel, E.—Zool. Gart. 20, p. 158, 1879.
5. Gurney, J. H.—On the Comparative Ages to which Birds live. Ibis (7), 5, pp. 19–42, 1899.
6. Hoffman, E. C.—Longevity of the Blue Jay. Bull. North-eastern Bird-Band. Assoc. 5, no. 2, April 1929, *fide* Auk, 46, p. 419, 1929.
7. Jennison, George.—Manchester Guardian, 21st Feb., 1918.
8. Lankester, E. Ray.—On Comparative Longevity in Man and the Lower Animals. London (Macmillan & Co.), 1870.
9. Manson-Bahr, P. H.—Bull. Brit. Orn. Cl. 350, p. 99, 1931.
10. Martin, L.—Zool. Gart. 19, p. 219, 1878.
11. Middleton, A. D.—A contribution to the Biology of the Common Shrew, *Sorex araneus* Linnaeus. P. Z. S. 1931, pp. 133–143.
12. Mitchell, P. Chalmers.—On Longevity and Relative Viability in Mammals and Birds. P. Z. S. 1911, pp. 425–548.
13. Whistler, H.—J. Bombay Nat. Hist. Soc. 34, p. 721, 1930.
14. Witherby, H. F.—Brit. Birds, 25, pp. 50 & 77, 1931.

Mr. David Bannerman exhibited the bodies of a number of migratory birds preserved in spirit which had been picked up dead on the Roque del Este, an isolated barren islet which lies off the northern coast of Lanzarote, eastern Canaries, and made the following remarks :—

In the autumn of this year Mr. Hugh Cott, already known to some of you for his explorations on the Zambesi, made an expedition to the Canary Islands for the purpose of procuring zoological collections, his principal object being to obtain a series of lizards from every island, the Canaries being

famous for some large species. In this he was successful, and during his visit to the smaller islets which lie off the Lanzarote coast, and which, in company with Mr. Bishop, I visited in 1914, he made a very remarkable discovery. First I would draw your attention to the two photographs exhibited of the Roque del Este, from which you will see that it is but a tiny islet, actually, I believe, one side of the lip of a crater which rears itself above the waves. You will note the position of the Rock on the two maps which I have brought with me. Actually the East Rock is the first land which a migratory bird would sight during the autumn migration, and would be very little west of the normal route taken by birds which had followed the coast of Portugal and were making for Africa somewhere in the region of the Rio de Oro.

When Mr. Cott landed on the Rock in September in search of lizards he climbed all over it, and was astonished to find the bodies of numerous small birds of various kinds scattered about. Many appeared to be quite fresh, others were in a mangled state, some were without heads, others without wings, while others had hardly a feather out of place. Mr. Cott collected a number of these last, about forty in all, and brought them home to me for identification.

In the two bottles of spirit before you are :

20 Common Whitethroats (*Sylvia communis communis*).
1 Redstart (*Phœnicurus phœnicurus phœnicurus*).
2 Nightingales (*Luscinia megarhyncha megarhyncha*).
2 Common Sandpipers (*Actitis hypoleucos*).
1 Whinchat (*Saxicola rubetra rubetra*).
2 Woodchat Shrikes (*Phoneus senator senator*).
4 Pied Flycatchers (*Muscicapa hypoleuca hypoleuca*).
1 Aquatic Warbler (*Acrocephalus paludicola*).
1 Grasshopper Warbler (*Locustella nœvia nœvia*).
*1 Scandinavian Chiffchaff (*Phylloscopus collybita abietinus*).
*1 Spanish Chiffchaff (*Phylloscopus collybita brehmi*).
2 Melodious Warblers (*Hippolais polyglotta*).

* The identification of these Chiffchaffs proved puzzling, and they were finally submitted to Dr. Claud Ticehurst for the opinion of an expert on the Palæarctic Region.

These birds were picked up at random ; dozens of others were left where they lay.

Now the question arises how came all these birds to be scattered in all directions over the Rock. Mr. Cott unhesitatingly points to the Falcons as the culprits, a " huge colony " of which live on the Roque del Este, and in answer to my query as to why so many of the birds were so little damaged, if this was the true explanation, writes :—

" In my humble opinion there is no doubt that these migrants — or at any rate most of them—are destroyed by the Falcons. They were found lying scattered almost all over the upper part of the Rock, at about 100–150 feet, in the neighbourhood of the nests and elsewhere ; in many cases the bodies were terribly bloody and mangled, and I have distinct memories of birds with their heads stripped clean off. In one case I think you will find a single head (minus body) in the collection, but I am afraid that I left the worst specimens behind, only bringing away the more recognizable birds."

We will leave it at that, but I should like the opinion of the members present as to whether they have ever met with a similar instance of birds being killed by Falcons far in excess of their food requirements, and therefore, apparently, for the sheer joy of killing.

The Falcons are almost certain to be *Falco eleonorœ*, of which I exhibit a specimen procured by myself in Lanzarote, but *Falco peregrinus peregrinoides* also inhabits Montaña Clara, and may occur on the Roque del Este as well. It is a resident in the Canaries, whereas *F. eleonorœ* is a summer migrant which comes to breed. The photo shown is of an eyrie on the East Rock at the time of Mr. Cott's visit, and the youngsters are now, I understand, thriving at the Zoo.

Finally, it may be of interest to remark that, in addition to nine summer visitors (of which *Falco eleonorœ* is one) and 15 winter visitors, the islands are visited regularly by 32 birds of passage, which pass through in both spring and autumn. In addition, 30 occasional visitors are recorded, and no less than 72 rare visitors.

Of the twelve different species collected by Mr. Cott, the Common Sandpiper is a winter visitor, the Redstart, Whinchat,

and Pied Flycatcher are regular birds of passage, while the Common Whitethroat and Woodchat-Shrike were thought to be rare visitors when I completed my investigations in 1920. Of the remaining species, the Aquatic Warbler figured in my appendix of doubtful records of which we required additional data, and the Nightingale and Melodious Warbler had been recorded on unreliable evidence. These are all now substantiated, and we have, in addition, added three fresh forms [one species and two races]—the Grasshopper Warbler, Scandinavian Chiffchaff, and Spanish Chiffchaff—to the Canarian list.

Mr. Cott is, I think, to be sincerely congratulated on his enterprise in bringing these birds home on the chance that they might prove to be of interest. I am sure you will agree with me that they certainly are.

The Rev. F. C. R. Jourdain remarked that in the Libyan Desert large numbers of dead migrants had been found near isolated outcrops of rock, and that in this case their death was obviously due to exhaustion and starvation, and not to the activities of Falcons. On the other hand, at the colonies of the Eleonoran Falcon in the Mediterranean, where these birds subsist on passing migrants, there are no excessive numbers of dead birds lying about. It may fairly be inferred that only a fraction of the deaths was due to the Falcons, and that most of the migrants arrived exhausted and perished from lack of food or water.

[Other members of the Club agreed with Mr. Jourdain that the Falcons were not responsible for the total destruction of the birds, although doubtless they took toll of what they required for themselves and their young. Major Flower suggested that some of the birds died from want of water, and that crabs might be responsible for the condition in which some of them were found.—Ed.]

Mr. W. L. Sclater exhibited, on behalf of Sir Charles Belcher, the nest and the skins of two young birds of a Palm Swift from Trinidad. This Swift has been provisionally identified with *Micropanyptila furcata*, recently described by Mr. G. M. Sutton from Guachi, Zulia, Venezuela, in 'The Auk' (1928, p. 135); this genus differs from *Reinarda*, to which the Trinidad

bird was first assigned, by the absence of the feathers on the toes. However, it will not be possible to make a satisfactory identification until adult individuals can be examined. These Sir Charles Belcher has promised to endeavour to secure. At any rate, neither *Micropanyptila* or *Reinarda* have hitherto been obtained on the island of Trinidad.

The nests are placed at the base of the dead fronds of a palm-tree, probably *Mauritia flexuosa*.

The following is Sir Charles's account of the matter in his letter of September 9, 1931, to me :—

" These Swifts occur, as far as I know, only in two places, and the total number so far seen cannot exceed fifteen pairs. I kept them under observation, and in July I saw one fly up into a bunch of dead palm-leaves, which satisfied me they were not Panyptilas, but I was not able to climb up to see if there were any nest. Last Sunday week, Aug. 30, I revisited the spot, and again saw a bird fly up into the same bunch of leaves. I tapped the trunk, and *three* birds flew out, two obviously being young. I could see no nest owing to the shadows, but a curious thing happened, for, after waiting ten minutes, hoping the birds might perhaps return (which they did not do), the nest fell down !

" Last Sunday I went there again, with Mr. G. D. Smooker, and he and I thoroughly satisfied ourselves that the birds, of which about ten pairs were in the air, were not of any species on the Trinidad list. Yesterday we took out an expert climber, an Indian in Mr. Smooker's service, and he found four nests : (*a*) the remains of the one that fell down, (*b*) an old one, (*c*) one building, (*d*) one containing two fully-grown young, capable of flight, which I killed and skinned, and these skins are the ones sent herewith.

" There was only one nest in each tree, and you will see from the nest, which may reach you a little later than the skins, that it is built right up at the base of the frond which is uppermost when the frond hangs down dead. What seems to happen is that the trees reach a certain height, perhaps forty feet, and then the lower leaves die, and as they die they fall at right angles to the stalk without becoming detached, and no doubt stay like

that for years, for it takes a good deal of cutting with a machete to sever the frond.

"The nest lowest down was about fifteen or twenty feet from the ground. The nest is a mass of multi-coloured feathers, those of Parrots and Doves being conspicuous."

Apart from the fact that this Palm-Swift is new to Trinidad, nothing, so far as I have been able to ascertain, has hitherto been recorded in regard to the nesting or other habits of these birds in any of the literature I have been able to consult, so that Sir Charles's exhibit and communication is of considerable interest and novelty.

Mr. W. L. Sclater exhibited two photographs of portraits of F. Le Vaillant, and said :—

I communicated to the last number of 'The Ibis' (Oct. 1931, p. 645) a short memoir on the French traveller and ornithologist, François Le Vaillant. This was illustrated with a portrait copied from the one in Swainson's 'Birds of West Africa,' about the authenticity of which I was not altogether satisfied. Later on I discovered that there were two portraits of Le Vaillant in the collection of the Bibliothèque Nationale in Paris, and through the kind help of Monsieur J. Berlioz I was able to obtain reproductions of these, which I now exhibit.

They will be deposited in the Library of the Natural History Museum, where they will be open for inspection.

Mr. W. L. Sclater described a new race of Swamp-Warbler from Tanganyika Territory,

Bradypterus brachypterus moreaui, subsp. nov.

Resembling *B. b. brachypterus* of South Africa, but the upper parts slightly darker and the tail more dusky and blackish, below the flanks slightly darker and browner, and the streaks on the breast scanty and inconspicuous. Bill blackish, horn-brown on the lower mandible, legs brown.

From *B. brachypterus benguellensis* the present race differs in its smaller size and less dusky coloration, while *B. b. fraterculus* from Kenya Colony is much more rufous above and below, and has the breast-spots much more marked.

Measurements.—Total length about 145 mm. ; wing 58 mm. ; tail 65 mm. ; tarsus 22 mm. ; culmen 13 mm.

The female resembles the male, but is slightly smaller, wing 55 mm.

Type.—A male collected by Mr. R. E. Moreau in a marsh at Amani, in the Usambara district of Tanganyika Territory, at 3000 feet, on November 27, 1930 ; collector's no. 372. Brit. Mus. Reg. no. 1931.5.7.7.

Remarks.—Mr. Moreau also collected another male and a female at the same place, and there are also in the Natural History Museum two other Swamp-Warblers which I consider to belong to this race : one obtained at Bagito, in the Uluguru Mountains, by Mr. A. Loveridge, the other from Komba, in the Masuku Range in northern Nyasaland, many years ago, by Mr. A. Whyte.

Mr. Sclater also contributed the following note on *Caprimulgus ugandæ* Madarász :—

Through the courtesy of Dr. E. Csiki, Director of the Hungarian National Museum at Budapest, I have been privileged to examine the type of *Caprimulgus ugandæ* Madarász (Ann. Mus. Hung. xiii. p. 394, 1915).

This description was based on a pair of birds, male and female, which were obtained by the Hungarian collector Kittenberger at Mujenje, in Uganda, on July 31, 1913.

In the 'Systema Avium Æthiopicarum,' 1924, p. 249, this species was placed as a race of *Caprimulgus rufigena,* but a glance at the two types shows that these are undoubtedly identical with *Caprimulgus natalensis chadensis,* of which the British Museum of Natural History possesses a large series from various localities in Uganda. *Caprimulgus ugandæ* is, therefore, a synonym of *C. natalensis chadensis,* and has nothing to do with *C. rufigena.*

Dr. Percy R. Lowe exhibited a specimen of a cross between the genera *Lyurus* and *Phasianus* (Black Game and Pheasant). The bird was shot on the Long Mountain (Montgomeryshire) on a shoot belonging to Mr. H. G. Harrison of Welshpool,

who sent it to the Rev. H. E. Cooke of Stoneleigh Vicarage, Coventry. From Mr. Cooke the bird eventually found its way to the British Museum of Natural History, where it has been preserved, and through the kindness of Mr. Harrison added to the collection.

Mr. Cooke (*in litt.*) states that "there were five of these birds, which made their appearance about August, when the wheat was cut, and they were to be found most evenings and early mornings feeding on the stubble, and especially perching on the stooks of corn, like Black Game do, for feeding. When disturbed, these birds would go away with a long flight of wing, more like a Grouse in the shape of the pinions in flight than anything else, and also with a deep kind of cackle like a Cock Grouse, only deeper. They usually made for the bracken when disturbed on their feeding-ground, or else on a large moor of taggy grass where Snipe abound."

One of the five birds which had been previously taken "weighed over 3 lbs., and its flesh was very white indeed, with not too much flavour"

Dr. Lowe remarked that hybrids between Black Game and Pheasants were not very rare. For instance, in 'The Zoologist' (x. 1906, pp. 321–330) the Rev. F. C. R. Jourdain had collected together the records of fifty occurrences in the British Isles.

In the specimen exhibited, the head, nape, mantle, breast, and abdomen were dark iridescent coppery purplish, showing both Black Game and Pheasant characters. The wing-coverts, secondaries, back, rump, and upper tail-coverts were finely barred with greyish-buff vermiculations. The tail was short and fan-shaped, the feathers exhibiting a Hen Pheasant colour-pattern. The throat was greyish-white, with steely bluish-black feathers "moulting in" here and there.

Dr. Lowe thought that the chief interest in these hybrids was the very accurate and faithful way in which the details of the colour-pattern characters were repeated from year to year. He pointed out that the hybrid figured by Mr. Jourdain in 'The Zoologist' for 1906 (*loc. cit.*) of a bird shot in Shropshire in 1874 might have been drawn from the

specimen he was exhibiting, so similar was it in detail of plumage; while a specimen in the British Museum killed near Alnwick in 1837, and presented by the Duke of Northumberland, as well as others, in the collection, demonstrated this important point.

Lord Rothschild sent for exhibition, as a supplement to Dr. P. R. Lowe's exhibit, a skin and a mounted specimen of a hybrid Pheasant×Blackcock (*Phasianus colchicus*×*Lyrurus tetrix*). The skin was purchased in Plymouth market, in February 1884, by Mr. John Gatcombe who sent it to Mr. Frederick Bond, of Fairfield Avenue, Staines, at the sale of whose collection it passed to the Tring Museum. The mounted bird was shot by the late Mr. Andrew G. Corbet, of the Grove, Ashbourne, Derbyshire, in S.W. Shropshire, in 1874. At the sale of Mr. Corbet's birds it was purchased by the Rev. F. C. R. Jourdain, who presented it to Mr. J. B. Nichols, at whose sale it was purchased for the Tring Museum. He also sent a hybrid Pheasant×Capercaillie (*Phasianus colchicus*×*Tetrao urogallus*), shot in Scotland, with two others of the same brood, one of which is, he believes, in the Edinburgh Museum. He drew attention to the fact that, although both hybrids are evidently sired by the Pheasant, the one crossed with the Capercaillie shows a much more pheasant-like tail than the Blackcock cross.

The Rev. F. C. R. Jourdain said that in 'The Zoologist' for 1906 he had published a list of 50 occurrences of this hybrid, and subsequently (*t. c.* p. 433) increased this number to 55. In 1912 he made a further addition to the list in 'British Birds' (vi. p. 146), raising the number to 60, and was of the opinion that over 70 had now been recorded from the British Isles, though, curiously enough, this cross was very rare on the Continent.

Dr. Percy R. Lowe also exhibited a normal male example of *Phasianus torquatus satscheuensis* Pleske, from Schanto-po, in N.W. China. This very pale subspecies of *Ph. torquatus torquatus* is known as the Sachjow Pheasant, whose area of distribution is given by Buturlin and others as lying within the north-westerly extension of Kansu along the northern

slopes of the Nan-shan mountain range separating Tibet from the Little Gobi.

This subspecies is strongly contrasted from the typical *Ph. t. torquatus*, the rump being a conspicuous light greyish-blue; the wing-coverts pale bluish-grey edged with very pale fawn, and the mantle feathers also edged with fawn and their centres almost white.

The breast is dark rich bay, and there is a white collar to the neck-feathers.

The female is exceptionally light-coloured.

The reason for making this exhibition was that he had lately seen some Pheasants being fed in Mr. E. G. B. Meade-Waldo's coverts which were extraordinarily similar to pure wild *Ph. t. satscheuensis*, and he was curious to know if other members had had a similar experience.

The impression he gained on watching the birds being fed was that some 60 per cent. at least were these conspicuously pale-coloured birds. The keepers' version was that they were "Chinese Pheasants"; but if by Chinese Pheasant *Ph. t. torquatus* was implied, as it generally is, the point he wished to bring out was that these birds were not *torquatus*.

It would be interesting to know if dealers were introducing a strain of *Ph. t. satscheuensis*, because, if so, the fact ought to be recorded in view of the already interesting case of the dark bluish-green form now common in our woods.

Mr. Hachisuka, he might finally add, had brought with him that night a very fine Pheasant in the flesh (bought at Bellamy's), and this bird was, feather for feather, similar to the Pheasant he had just exhibited.

Dr. James M. Harrison made the following remarks *re* the discussion on *Phasianus torquatus satscheuensis* :—

So far as my own experience goes in this area, *Phasianus t. satscheuensis* is not abundant. I have one which was killed as long as 25 years ago; another in my possession was obtained in December of last year. I myself shot a third example about five years ago. These are the only three specimens of which I have had personal knowledge during ten years

in the Sevenoaks district, but I have heard of several others. It is not a bird one sees often in the local game-dealers' shops.

The examples which I have been able to examine are typically pale on the back, with very pale bluish-white wing-coverts and an incomplete white collar.

Mr. Hugh Whistler forwarded the following description of a newly-distinguished race of Willow-Wren from the Western Himalayas :—

Phylloscopus trochiloides ludlowi, subsp. nov.

Differs from *P. t. trochiloides* in having the upper parts paler and less saturated in colour and in having the lower parts also paler and with less of an olivaceous wash.

Measurements.—

5 ♂♂. Bill 13–13·5 ; wing 62–67 ; tail 47–52·5 ; tarsus 19–19·5 mm.

1 ♀. Bill 13·5 ; wing 58·5 ; tail 47 ; tarsus 19 mm.

Second primary equals 8/9, 9/10, or 10/11.

Distribution.—Kashmir State, Garhwal, and doubtless the intervening areas of the Western Himalayas.

Type.—Ludlow Coll., no. 1310, ♂, May 25, 1931, Maran River, 5500 feet, two stages from Kishtwar. Presented to the British Museum. Brit. Mus. Reg. no. 1931, 12.10.1.

Remarks.—Named after Mr. F. Ludlow, whose travels have added so greatly to our knowledge of the ornithology of Central Asia.

The type-locality for *P. t. trochiloides* (Sundev.) [=*lugubris* auctorum] is Calcutta, where the species is a winter visitor only. I accordingly submitted specimens of both the east and west Himalayan forms to Count Nyls Gyldenstolpe, who was kind enough to compare them with the type-specimen now in the Royal Natural History Museum, Stockholm. The result of his examination shows that the east Himalayan is the typical form. This species now proves to agree with other Himalayan members of the genus *Phylloscopus* in having a paler race to the west and a darker, more saturated race in the east.

Mr. Gregory M. Mathews described the following new form :—

Pterodroma externa tristani, subsp. nov.

Differs from *P. e. externa*, from Masafuera Island, Chili, in being darker on the upper surface and on the wing-coverts. The bill is longer, 38 mm., as against 35 of *externa* measured the same way (and they are constant). The bill also appears heavier. Wing 322 mm. ; tarsus 40 ; middle toe with claw 51 ; tail 141. All these measurements exceed those of the same parts in the species.

From *P. e. cervicalis* it differs in not having the whitish collar on the back of the neck, and in having the under-wing lining all white.

Type.—Tristan da Cunha, ex the Jack G. Gordon Collection in 1919, now in the Royal Scottish Museum, Edinburgh, Scotland.

Mr. P. F. Bunyard exhibited a copy of ' Eggs of Finnish Birds,' drawn and coloured by G. Sundman, published, apparently, by the artist at Atelier, Helsingfors, and made the following remarks :—

This copy is signed by the artist, Gosta Sundman, December 30, 1890, and is, so far as I am aware, a scarce work ; there is no letterpress, and consequently it can hardly be considered of scientific value.

There are about 264 figures, embracing about 207 species, well and accurately drawn, but not too highly coloured, while white eggs are shown on a chocolate ground. The scientific and native names are given under each egg, and for the former the artist has apparently followed Baedeker and Thienemann.

The figures of the eggs of the Accipitriformes are particularly good, and include a well-marked egg of the Goshawk, *Astur gentilis gentilis*—in fact a much better-marked specimen than the one exhibited by me in November 1926 at a meeting of the Club (Bull. B.O.C. xlvii. 1926, p. 61). There is, also, a marked egg of the Hen-Harrier, *Circus cyaneus cyaneus*, which is not altogether unusual in this species.

The figures of those of the Anatidæ are the best I have seen. The coloration is very accurate, though some of these plates, in my opinion, are spoilt by the eggs being shown in pieces of grass and moss.

Among those of the Limicolæ or Charadriiformes is a stippled egg of the Jack Snipe, *Lymnocryptes minimus*, resembling the eggs of the Broad-billed Sandpiper, *Limicola falcinellus falcinellus*, which cannot be considered typical, though I happen to have two similarly marked eggs of this rare form, which I now exhibit, together with four typical eggs.

The figure of the Green Sandpiper's egg, *Tringa ocrophus*, shows a greyish-white ground-colour; this is unusual, but occasionally occurs. The egg of the Great Snipe, *Capella media*, is not typical.

Those of the Passeriformes include an egg of the Rustic Bunting, *Emberiza rustica*, which is very characteristic; that of the Crested Tit, *Parus cristatus*, is unmarked; they are usually heavily pigmented. It is possible, however, that this is only a leucocitic egg, a condition which occurs in all the eggs of the Paridæ. The egg of the Sedge-Warbler, *Acrocephalus schœnobœnus* shows conspicuous hair-like lines, which is not unusual. The blue egg of the Cuckoo, *Cuculus canorus*, would have been more interesting if the name of the fosterer had been given.

Oologically this is a very useful work, and of great credit to the artist, but robbed of much scientific value by the absence of letterpress.

Major Flower read the following letter :—

Kiltymon, Newtownmountkennedy,
Co. Wicklow, Ireland,
4 December, 1931.

Major Stanley S. Flower, O.B.E.,
Spencersgreen End,
Tring.

Dear Sir,

I see in the B.O.C. Bull. that you are to speak on the longevity of birds at the next meeting. You may be interested to hear that I have a Bulbul (*Pycnonotus xanthorrhous*

Anderson) which I brought back from Mengtsz, Yunnan, in 1921. This bird was given to me as a nestling in September 1920, and is living in good health without showing any sign of age, barring that the claws are a little too long. The bird is fed on bread and milk, lettuce, raw beef, fruit, and flies, bread and jam being often also given. This bird was thus 11 years old last September. It moults well and regularly in September and October.

Yours faithfully,

J. D. La Touche.

The Rev. F. C. R. Jourdain made a short statement with regard to the next International Ornithological Congress. At the last Congress, held in Amsterdam in 1930, it was decided that the next Congress should be held in England in 1934. Dr. E. Stresemann, of Berlin, and the Rev. F. C. R. Jourdain were elected President and Secretary, and a small Committee was appointed to draw up a new Code of Rules for future Congresses. When the new rules have been adopted by a majority of the International Committee they will become operative, and British ornithologists will then be called upon to decide whether the Congress shall be held in London or the provinces. It is proposed to bring the matter before the B.O.U. at the Annual Meeting next March, and Mr. Jourdain expressed a hope that members of the Club would give their attention to the matter in the meantime.

NOTICES.

The next Meeting of the Club will be held on Wednesday, January 13, 1932, at PAGANI'S RESTAURANT, 42–48 Great Portland Street, W. 1. The Dinner at 7 p.m.

Members intending to dine are requested to inform the Hon. Secretary, Mr. C. W. Mackworth-Praed, 51 Onslow Gardens, London, S.W. 7.

Members who intend to make any communication at the next Meeting of the Club should give notice, as early as possible, to the Editor, Dr. G. Carmichael Low, 86 Brook Street, Grosvenor Square, W. 1, so that the titles of their contributions may appear on the Agenda List. All MSS. for publication in the 'Bulletin' must be given to the Editor before or at the Meeting.

Agenda.

1. Lt.-Comdr. R. R. Graham, R.N., will give a lecture, illustrated by lantern-slides, on "The part played by the Emarginated Feathers and the Alula in the Flight of Birds."
2. Miss Acland will exhibit slides illustrating the catching of Puffins in the Faroes.
3. The Hon. M. Hachisuka will describe a new race of *Caprimulgus affinis*.
4. Mr. P. F. Bunyard will exhibit a series and a remarkable clutch of eggs of the Chaffinch.

BRITISH MUSEUM
NATURAL HISTORY

Ward Room

BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB.

No. CCCLVI.

THE three-hundred-and-fifty-first Meeting of the Club was held at Pagani's Restaurant, 42–48 Great Portland Street, W.1, on Wednesday, January 13, 1932.

Chairman : Major S. S. FLOWER.

Members present :—Miss C. M. ACLAND ; E. C. STUART BAKER ; D. A. BANNERMAN ; F. J. F. BARRINGTON ; Miss M. G. BEST ; Sir JOHN ROSE BRADFORD ; G. BROWN ; P. F. BUNYARD ; A. L. BUTLER ; Hon. G. L. CHARTERIS ; H. P. O. CLEAVE ; R. H. DEANE ; Capt. F. W. DEWHURST ; Miss J. M. FERRIER ; Lt.-Comdr. R. R. GRAHAM ; Rev. J. R. HALE ; Col. A E. HAMERTON ; B. G. HARRISON ; T. H. HARRISSON ; R. E. HEATH ; Mrs. T. E. HODGKIN ; Miss D. HORDERN ; Dr. K. JORDAN ; Rev. F. C. R. JOURDAIN ; N. B. KINNEAR ; Miss E. P. LEACH ; B. LLOYD ; Dr. G. CARMICHAEL LOW (*Editor*) ; Dr. N. S. LUCAS ; Lt.-Col. H. A. F. MAGRATH ; Dr. P. H. MANSON-BAHR ; G. M. MATHEWS ; Dr. W. M. MAY ; Mrs. C. D. MURTON ; J. L. CHAWORTH MUSTERS ; T. H. NEWMAN ; C. OLDHAM ; H. L. POPHAM ; C. B. RICKETT ; Lord ROTHSCHILD ; Major A. G. L. SLADEN ; Dr. A. LANDSBOROUGH THOMSON ; B. W. TUCKER ; Miss E. L. TURNER ; H. F. WITHERBY ; C. R. WOOD ; C. DE WORMS.

Guests :—C. W. BENSON ; D. VAN O. BRUYN ; A. L. GRUNING ; A. H. HARKNESS ; D. H. MANSON-BAHR ; J. MAVROGORDATO ; G. N. MAY ; Mrs. H. F. WITHERBY ; T. WITHERBY.

Lieut.-Commander R. R. Graham, R.N., read a paper, illustrated by lantern-slides, on "The Part played by the Emarginated Feathers and the Alula in the Flight of Birds."

He opened his talk by acknowledging his indebtedness to those who took the photographs which he had to show. He then went on to say that, as his subject was rather out of the ordinary run for many of those present, he proposed to commence by trying to make clear exactly what he was going to talk about.

For many years now (he said) the appalling casualty lists of aviation, both civil and military, had been steadily rising, though there was some consolation in knowing that the number of accidents compared with hours flown had shown a decided improvement. This improvement was undoubtedly due, in part, to the fitting of a certain safety device to aeroplanes known as the "slot." Slot, as could be seen from the lantern-slides he showed, was a poor term for the device, which really consisted of a small auxiliary plane situated just in front of the main plane, and lying at an angle to it. Its effect was to allow the machine to be flown at a slower speed than was practicable with unslotted wings without falling out of control. There was no need, of course, to emphasize the desirability of being able to land and fly slowly.

We knew a good deal nowadays about how the slot worked and what it did, and this knowlege had led to the interesting discovery that birds possessed an almost exact replica of it in their wings. This took the form of a small tuft of feathers attached to the alula, or bastard wing, the limb which, in birds, corresponds to the thumb of the human hand.

In addition to the slot formed by the alula of a bird's wing, which may well be termed the wrist-slot, many birds possessed a similar but less evident form of slot in their wing-tips. This type was formed by means of emargination of the flight-feathers, and to distinguish it from the other type it would be referred to as a "wing-tip slot." Nothing closely resembling the wing-tip slots of birds was to be found in aeroplanes as yet, though a Mr. Thurston, a patent agent resident in London, did bring out, a few years ago, designs for aeroplane slots which were avowedly copied and adapted from the wing-tip

slots of birds. For some reason or other nothing came of these designs, though it was satisfactory to note that they or, rather, designs developed from them, were once more receiving the attention which they deserved.

As seen in flight these slots merely gave the impression that the feathers had separated.

Both the wrist and wing-tip slots of birds varied, in accordance with the flying characteristics and habits of their owners, in a fashion which is of particular interest to ornithologists; but before these variations could be understood it was necessary to arrive at an understanding of what a plain unslotted wing does to the air to derive from it the forces required for flight, of what its limitations were, and of how its utility can be extended by means of slots.

The flight of birds and aeroplanes was only possible on account of the laws of action and reaction. Submarines and airships floated in the fluids in which they were immersed because they weighed exactly the same as the amount of fluid which they displaced, but not so a bird or aeroplane. These were much heavier, volume for volume, than the air, and so they had to defeat gravity by causing air to move downwards in such a way that it reacted upwards upon them. Incidentally, they also caused air to move backwards in order to derive from it a forward reaction which drove them along.

There were two ways in which a wing could be made to cause air to move downwards: one was by holding the wing flat and beating it downwards. This method, though it looked all right, was hardly ever used by birds, and was definitely never employed in aeroplanes, because it was inefficient and wasteful of energy. All that happened was that the air moved out sideways to allow the wing to pass, and then moved in sideways to fill in the space which had been formerly occupied by the wing. A certain volume of air was dragged down behind the wing, and gave it an upward reaction, but it was far less, for the energy expended, than with the other method. Slide 7 showed the flow of air round a wing which was moved in this manner. The wing was in what is known as a " stalled " condition.

The other method was to move the wing horizontally, with the front edge cocked up at an angle of, say, 12° above the direction of movement. The wing then acted like a ploughshare, cutting a narrow furrow in the air and glancing off in a downward direction the material displaced from the furrow, which was actually at right angles to the surface of the wing. The reaction was in the opposite direction, upwards and slightly backwards. That was how an aeroplane was kept in the air ; the forward reaction of the air which was driven backwards by the air-screw, or propeller, overcame the backward component of the reaction on the wings and so prevented the machine stopping. (This method was illustrated in slide 8.)

The wings of a bird which was in level gliding flight, in still air, acted in precisely the same manner, but the bird gradually lost speed because it had no propeller to overcome the backward-inclined part of the reaction on the wings. That was where flapping flight came in. The principle of flapping flight was exactly the same as that of gliding flight, though the application of the principle differed in a manner which was explained further on in the paper. For the time being it was necessary to concentrate on gliding flight, for so far less than half of the force derived by the wing had been considered. In slide 8 *a* the furrow cut in the air by the wing was shown as a blank space, filled with nothing—in other words, a vacuum : a thing abhorrent to nature. Being such, of course, it was not allowed to form : in reality it was filled almost as soon as it formed by the stream of air which passed over the top of the wing flowing down into the furrow in a smooth curve in the manner shown in slide 8 *b*. It might be thought that this filling of the furrow would destroy the upward pull which the vacuum, if unfilled, might exert upon the wing. To a certain extent it probably did, but a good deal of the vacuum remained, sufficient, in fact, to account for three-fifths of the total reaction of the air on the wing.

This partial maintenance of the vacuum was explained by the fact that air was a peculiar substance, best likened to a very attenuated and elastic variety of treacle. With that

simile in mind, it was easier to understand that the air was, as it were, reluctant to flow down and fill the furrow. It was convenient to think of the resulting reaction as being a " tension " between the air and the upper surface of the wing. The two reactions, one acting on the lower and one on the upper surface of the wing, were known as the total resultant force, which was directed (and this was important to remember) approximately at 90° to the mean surface of the wing.

When a bird was flying at high speed, the furrow cut by the wings in a given time was longer than at low speeds, because the bird travelled a greater distance. Therefore, in order that the volume of air moved down might not be too great, the bird allowed the rear edge of its wings to be pressed upwards by the reaction of the air, reducing the angle at which they lay and the depth of the furrow. Conversely, as speed fell—as, for instance, when a bird was gliding down to alight—the depth of the furrow must be increased by increasing the angle of the wings, It was a common sight to see a bird landing with body, wings, and tail gradually rising up in front until, with a final flap or two, it came to rest.

This method of retaining the upward reaction could only be employed with impunity, with unslotted wings, up to an angle of about 15°. Above that it failed, on account of another peculiar property of an air-stream, which was, that it loathed being made to turn sharp corners. When asked to turn downwards through an angle greater than about 15° the upper part of the stream which flowed past a wing in flight simply passed straight on, in the manner shown in slide 9*a*; but that furrow in the air had to be filled, and so the air-stream eventually turned and, in extreme cases, actually flowed forwards across the surface of the wing. This movement set the whole upper stream whirling until, if visible, it would look like the turbulent wake behind a square-sterned boat, and, like such a wake, it all followed along behind the wing. As before, the air-stream did this with a certain reluctance, and so there was still some reaction ; but, instead of the tension between wing and air being mainly upwards and

downwards, it was now backwards, and simply had the effect of reducing the speed still more: the reaction fell rapidly, and, finally, so did the bird or aeroplane that permitted this thing to happen. The process was known as a "stall."

It had been found that a wing might be employed without stalling at a much greater angle than 15° by helping the air-stream which passes over the top to turn the corner, as it were, by giving the stream a preliminary kick in the required direction; that was what the little auxiliary winglet of a slotted wing did. Slide 9 *b* showed how the air-stream flowing past a slotted wing, set at an angle of about 25°, behaved: the stream started turning down before it reached the main wing, and so was enabled to turn through the whole 25° and flow smoothly downwards. Slides 10 and 11 showed that birds do sometimes allow their wings to stall momentarily, when it is to their advantage. The covert-feathers on the top of the wings had been blown up by the air-stream flowing forward over them. Slides 12 and 13 were photographs of birds with their alulas in the forward or "slot-open" position, and the lecturer indicated how the air-stream must have been flowing through them.

In some birds the alula was nearly three-tenths of the length of the wing: these were the birds with small wings for the weight of the bird, and which, consequently, require the assistance of this great aid to flight the more. Pheasants and Partridges were good examples of the type. In others the alula was much smaller. Gulls seemed in general to have wrist-slots only one-tenth of the length of the wing; in the Albatrosses they were even smaller, and several wings of Humming-birds which had been examined appeared to have none at all; but these were approaching the type of flight used by insects, which was quite another story. Of particular interest in this connexion, two fledgling birds, a Wren and a House-Martin, were found to have their alulas fully developed, while the main wings were as yet smaller than in the adult bird. Whether or not this was a general rule in all birds it was hoped that some member of the audience would be able to tell us, but it was nice to think that in these two species, at any rate, the young hopefuls, on their first

solo flights, had the benefit of fully developed safety devices on their untried and under-sized wings.

There were many more interesting things to tell about the wrist-slots of birds—for instance, the fact that their opening and closing was largely automatic ; but, owing to pressure of time it was proposed to go on and describe the construction and working of wing-tip slots, perhaps returning to the others before concluding.

The alula lies on the top of the front margin of a wing, and so is free to move out and up to its working position, but the tip of the first flight-feather in a wing lies beneath, and is overlapped by the second feather. This was what puzzled the aeronautical experts before they fully understood emargination. The truth was that, owing to their being emarginated, the tips of slot-forming feathers do not overlap. Slide 14 showed two feathers taken from the same position in the wings of a Golden Plover (which has no wing-tip slots) and of a common Buzzard (which has them highly developed). The Golden Plover's flight-feathers overlapped right out to the tips, even when the wing was fully spread, but those of the Buzzard separated. Slide 12 was a drawing of the under surface of a Partridge's wing-tip, showing how the emarginated feathers fit together to form the six well-marked slots.

The working of a multi-slot wing-tip, such as that of a Rook, Partridge, or Buzzard, was rather complex, so it was best to start off by considering a single-slot example, the Wryneck, shown in slide 16. Here the emargination was such that only the tip of the first flight-feather was separated from the rest of the wing. When the wing-tip, considered as a whole, was set so that the air-stream was striking it at an angle of, say, 25° from below, the rear edge of the separated tip of the first feather would be blown upwards because it was much broader and more flexible than the front web, and was unsupported above ; in other words, the angle at which that feather lay to the air-stream would be reduced to, say, 10°. The reaction upon it would then point more forward than that on the main wing, and the feather would tend to move forward. This movement was checked and finally stopped by means of special microscopic hooks protruding from the upper

surface of the broad unemarginated part of the rear web of the first feather. These hooks, at the critical moment when the slot was fully opened, engaged with the microscopic ribs on the stiff, curved-down, front edge of the unemarginated part of the second feather, which was overlapping them. A drawing of the hooks in a Griffon Vulture's wing was shown in slide 17.

After the hooks had engaged, the only further forward movement that could take place in obedience to the reaction of the air was for the separated tip to bend forwards. That it did so was shown in many photographs (slides 18 and 19).

A section taken through the wing-tip when the slot was fully opened would show that the separated tip of the first feather was in the familiar slot position, where it could give to the air-stream that preliminary nudge which would enable the stream to turn the complete 25° down over the main part of the wing-tip which lay behind it.

In wings where more than one feather-tip was designed to separate, the first acted as a guide for the air-stream before it passed over the second, the second for the third, and so on; each feather giving to the air-stream as it passed a light downward nudge. The probable flow of air through a section of a wing of this type was shown in slide 20. Slide 21 showed that the wing of a Golden Eagle came in this category.

Such a wing was capable of deflecting the air-stream without turbulence through amazingly large angles. Here the author showed (slide 22) a model aeroplane wing designed by Mr. Handley Page on these lines. The succession of slots in the wing gave it somewhat the appearance of a venetian blind. It was found that this wing gave an increased lift of 200 per cent. over an unslotted wing when set at an angle of 42° to the air-stream. In a way it was greatly to Mr. Handley Page's credit that he was able to devise this wing without a knowledge of the example that nature had provided. The possibility of such wings being put to practical use in aeroplanes had, happily, not been lost sight of, but for technical reasons, which would require a good deal of explanation, this had not yet been done.

To sum up, the intrinsic function of emargination was to permit feathers to separate when a wing was employed at large angles: firstly, in order that the feathers themselves might not stall, and secondly, in order that they might act as guides to the air-stream to prevent the stalling of the wing-surface which lay behind them.

Though emargination was of great service to some birds in gliding flight, it was even more so in flapping flight. Once the idea that a wing slices its way through the air, and that the reaction of the air so displaced is at right angles to the wing-surface, had been thoroughly grasped, the action of flapping flight was quite simple. When a Seagull's wing was being flapped downwards so that the downward speed of the tip was equal to the forward speed of the bird, the resulting air-stream encountered by the wing-tip would be inclined upwards and backwards at 45°. The wing, having its strong part, or keel, near the front edge, would tend to twist rear edge up into line with this air-stream, but the bird only permitted it to twist to within, say, 10° of the stream. The result was that a furrow was cut, as in gliding flight, and the air from the furrow was displaced backwards and downwards, with a consequent upward and forward reaction, actually directed at 90° to the surface of the wing. This power was exactly what was wanted to drive the bird along and to keep it aloft.

Half way along the wing the downward speed was less than at the tip, so there would be less tendency for the wing to twist at this point, and at the shoulder the stream encountered was absolutely level. So, theoretically, a wing in the down-beat should be twisted like the blade of a propeller, and this was amply verified by photographs.

In the up-stroke, apart from the flexing back of the wing-tip, the twisting was in the opposite direction. All this twisting could easily be accommodated in the long, narrow, flexible wing of a Seagull, or any bird with wings of similar shape; but there were many birds, such as Wrens and Pheasants, which for one reason or another could not afford to have as long wings as would be suitable for their weight. To make up for their shortness, these wings had to be broad, and the resulting

shape was most unsuitable for twisting, especially for the extreme twisting (perhaps as much as 70° either way at the tips) which must be required with the very rapid up-and-down movement of the wings which these birds employed. Something more like silk fabric with a rubber frame rather than feathers and bones might be able to achieve it.

This was where emargination came to the rescue. Where it was present, each feather outside the steps in the webs was unsupported by its neighbour, and was, therefore, free to twist into line with the air-stream on its own. Its stiffness prevented the air-stream from twisting it entirely into line with the flow, and so once more a furrow was cut, and upward and forward reaction was produced. Each feather was working away on its own exactly like a small wing, and the need for the frame of the whole wing to twist was removed. Slide 24 showed how the air might be expected to flow through the emarginated feathers of a Pheasant's wing in the down-beat.

This matter of shape of the wing was probably the most important of the several factors which went to decide whether or not a bird had emarginated primaries, and, when it had them, how much emargination there was. The shape of the wing itself was governed by the habits of the bird : for instance, nearly all the sea-birds and birds that live in open spaces, such as the Curlew and its cousins, had long, narrow, pointed wings ; and where they had emargination, such as in Geese, Swans, Cormorants, and the Great Crested Grebe, the slots were very short. The Lapwing was the one interesting exception, and in this case there was a fairly obvious explanation, for its broad-tipped slotted wing-tips must surely be designed to facilitate the execution of the amazing acrobatics in which it indulged. Large surfaces at the wing-tips provided the superlative control.

Conversely, with three interesting exceptions, all birds on the British List that might be said to be more or less arboreal in habits (that is, which flew in places where long wings would soon get damaged, and would at times be quite useless) had wing-tip slots. The three exceptions were the Kingfisher, the Cuckoo, and Savi's Warbler. The last was the only

Warbler that had an unslotted wing-tip. The Cuckoo was a clumsy performer when he got to close quarters in bushes and the like ; and as regards the Kingfisher, it was probable that his habit of hovering had something to do with the lack of emargination in his wings. But the reason why these three species should have long pointed wings rather than rounded slotted ones was not at all clear.

The desirability of having long pointed wings for flying was a rather technical matter of aerodynamics, but it could be explained briefly in the following manner. The ideal wing, from a point of view of providing reaction or lift from the air was one of infinite length, because such a wing had no tip over which the air could be spilled. If a wing were only half as long as it was broad, nearly all the air which was being compressed and forced down beneath the wing would slide out sideways. That was the other extreme. It was hoped that the comparison between the two types would make it clear that the longer and narrower a wing was, the easier would its owner find the business of remaining aloft. Slide 26 showed the wing-shape of some high-efficiency gliders.

There were two classes of birds which required to be treated separately in this matter of explaining why they required heavily slotted wings : they were the great soaring land-birds and birds like the Partridge and Grouse.

As regards the soarers, the Albatross, which was probably the king of soarers, went nearer than any other bird to the ideal of having a wing of infinite length : it could afford to, for it dwelt in the great open spaces of the ocean, where its wings never encountered obstructions. When the wind, which was so essential to its activities, died down, the bird could settle upon the water, comparatively secure from enemies, and seldom needed to rise again until the wind returned. If the bird did have to take to the air in a flat calm, its long wings, like those of Gulls, touched the water at the bottom of the first few wing-beats, but they suffered no harm, as water was comparatively soft. But the great soaring land-birds, like Eagles and Vultures, when they settled upon level ground, in calm air, were in a very different predicament—

they had to be prepared for instant flight. If their wings were shaped like those of the Albatross they would certainly suffer damage in the first few strokes; they therefore had to be shorter and broader, with rounded instead of pointed tips, and consequently had to be slotted. There were several details of aerodynamic efficiency which were of no particular interest to ornithologists, but which contributed towards the need for a rounded or square-tipped wing being slotted, however long and narrow it was.

Partridges, Grouse, Ptarmigan, and such birds did not come under the heading of those whose wings were short because they flew amongst trees and the like; on the contrary, they lived in the open. It was their curious habit of lying close when disturbed and then rising with tremendous acceleration that had caused the evolution of their highly developed slots. Long wings could not possibly do the work required. Short wings, flapped at high speed, with consequent excessive twisting, must of necessity be highly slotted, as was explained before.

A very interesting aspect of emargination was the manner in which the shape of the slots formed varied. In some species of birds the notches in the webs of the feathers were rounded off; this was the commonest form, and was found in nearly all birds of the order Passeres. This might be termed the normal form. In Hawks and Owls the notches were usually sharply cut, so that the slot formed was square at its inner extremity. This had, perhaps, something to do with silence in flight, for these birds, hunting on the wing, must naturally desire that their prey should not hear their approach. Birds such as Pigeons, Duck, Swans, and Starlings, which had no strong reason for silent flight, all had pointed slots, with gradual emargination. The flight of these birds was noticeably noisy. Slots also varied in several other ways.

In conclusion, Lieut.-Commander Graham said that he hoped that those of his hearers who had not before been introduced to the theory of flight had been able to follow at least some of the subject matter. Those who were interested in aviation would have realized that aircraft designers might

have gone ahead faster than they had done by paying a little more attention to the real experts, the birds. A discussion on whether there were any lessons remaining for designers from a study of the flight of birds might be seen in the current issue of the Journal of the Royal Aeronautical Society. It was in the form of an appendix to the papers published in ' British Birds ' in 1930, and republished in the journal by kind permission of Messrs. Witherby & Co.

Miss C. M. Acland showed slides illustrating Puffin-catching in the Faroes.

At the November meeting of the Club, she said, an interesting account of the method of catching Puffins (*Fratercula arctica grabæ*) on St. Kilda was given by Mr. T. H. Harrisson, and the horsehair noose employed was shown by Mr. Oldham. At the latter's request she was venturing to show to-night these slides, taken in the Faroes, where the catching of Puffins had been developed into a fine art. The cliffs were very high and precipitous, running in some places to as high as 2000 feet. The Puffin-catcher seated himself in partial concealment among the rocks at the top of the cliff, with a few dead Puffins placed in life-like attitudes near by to act as decoys. Armed with a long pole, 12 or 14 feet in length, with a loosely-strung net, 4 feet long by 2 feet wide, at the end, he awaited the arrival of the Puffins as they winged their way in from the sea. Allowing the pole and net to lie at an angle sloping down below his feet, he caught the birds on the wing, as they flew past his place of concealment, with an upward stroke of the net and a turn of the wrist which were strongly reminiscent of a lacrosse player catching the ball. A skilful fowler would catch as many as 250 or 300 birds in a morning, and would tie them into a bundle on his shoulders which he supported with a band round his forehead to take the weight. This band could easily be slipped off with a backward jerk of the head in a case of emergency such as a slip, which might otherwise prove fatal. Puffins, Guillemots, and Razorbills were all caught in this way, and were skinned, not plucked, and only the breast cooked ; they formed very excellent eating, and were not at all fishy or oily.

Lord Rothschild exhibited a series of Pheasants bred and killed in England, together with examples of *Phasianus colchicus satscheuensis* Pleske, *P. colchicus torquatus* Gmelin, etc., and made the following remarks :—

At the previous meeting Dr. P. R. Lowe exhibited a specimen of *P. colchicus satscheuensis* *, described what he had seen at Mr. Meade Waldo's place, also reported a similar Pheasant obtained at Bellamy's in the flesh, and suggested that possibly some of the dealers had introduced *P. c. satscheuensis*. So far as he (Lord Rothschild) knew, this was not the case, only a single male *P. c. satscheuensis* having reached Europe alive. This bird lived some time in the Zoological Gardens. The series of birds exhibited were casual occurrences at Tring and elsewhere, and cropped up sporadically, mostly after the introduction of the Mongolian Pheasant, *Phasianus colchicus mongolicus* Brandt. This went to prove that when a number of local races of one species were crossed and recrossed, the offspring might exactly resemble another local race *not* contained in the actual mixture. The explanation of this was, he believed, that all lines of variation were present in a dormant condition in the individual, and it required considerable shock, such as this crossing and recrossing, to bring out one or the other character. The Tring examples were offspring of the following five races of *Phasianus colchicus* Linnæus, viz. :— *P. colchicus colchicus*, *P. colchicus torquatus*, *P. colchicus mongolicus*, *P. colchicus semitorquatus*, and *P. colchicus versicolor*. The following was the list of the exhibited series :—

Cross-bred Pheasants bred in England.

(1) One reared at Boston, killed at Thorpe, Christmas 1903 (E. T. R. Gurney Coll.).
(2) Tring, December 1889.
(3 & 4) Two, Tring, November 15, 1908.
(5) One wing, Tring, November 15, 1908.
(6) Leadenhall Market, 1905.

Wild-shot local races of Phasianus colchicus.

(1) *Phasianus colchicus colchicus* Linnæus.
Kutais, Rion River, 13. i. 1894 (Alpheraky Coll.).

* Called by Dr. P. R. Lowe *Phasianus torquatus satscheuensis*.—Ed.

(2) *P. colchicus mongolicus* Brandt.
Near Issyk-Kul, Turkestan (Kutchenko Coll.).
(3) *P. colchicus semitorquatus* Severtzow.
Manas Zongaria, December 1893 (Alpheraky Coll.).
(4) *P. colchicus torquatus* Gmelin.
Between Wuku and Anking, E. China, 10. xii. 1910 (Captain Hubert Lynes Coll.).
(5) *P. colchicus satscheuensis* Pleske.
Anggi, China, 25. ii. 1890 (Grumm-Grschimaïlo Coll.).
(6) *P. colchicus versicolor* Vieillot.
Kawokami, Asogun ; Kumamoto, Province Higo Kuisu, 4. xii. 1916 (S. Iwata Coll., ex coll. Kuroda).

The Hon. M. Hachisuka sent the following description of a new race of *Caprimulgus affinis* :—

Caprimulgus affinis kasuidori, subsp. nov.

The present new race can be recognized, when compared with *C. a. affinis* and *C. a. propinquus*, by having slate-coloured vermiculations all over the body except the primary feathers and the vent ; both the former races have buffish or brownish vermiculations. The white markings on the tail in the male are like the typical form, while *propinquus* appears to have the first outer pair white and the cross-barred marking starting from the basal half of the inner web of the second pair.

This new race does not show any connecting link between two geographical races, but shows an offshoot of *C. a. propinquus*. It can easily be recognized by its light and conspicuous spot on the breast and the same coloured markings on the outer web of the wing-coverts.

Distribution.—The exact distribution of the three races is :

C. a. affinis Horsfield—Java, Sumatra, Bali.

C. a. propinquus Riley—Celebes, Lombok, Sumbawa, Flores, Allor, Timor.

C. a. kasuidori Hachisuka—Savu, Sumba.

Type.—Type-locality, Savu Island, male, collected by Everett in August 1896. Type-specimen in Tring Museum.

Lord Rothschild described a new race of *Sylvia undata*:

Sylvia undata maroccana, subsp. nov.

On receipt of a specimen of *Sylvia undata* from Captain Munn from the Balearic Islands, I compared it with the series at Tring, and at once saw that it could not be *S. undata undata* because of its intense coloration.

After careful comparison I found it agreed best with a series of five (2 ♂♂, 3 ♀♀) collected by Admiral Lynes in Yebala, N.W. Marocco. Dr. Hartert had identified these as *S. undata toni* Hart., described from Algeria, but I consider this to be incorrect, and describe the Maroccan birds as follows:—

Description.—♂ ad. Upper side much darker than in *S. u. toni*, slaty black, not greyish slate, especially on head and neck; underside also much darker vinaceous chocolate.

Type.—♂ J. Mago, Yebala, N.W. Marocco, 29. iii. 1923 (Admiral Lynes Coll.).

Remarks.—The specimen from Captain Munn is also a male (Alcudia, Majorca, 28. xi. 1931), but, being much more freshly moulted the whole upper surface is washed with mummy-brown, as are the outer webs of the primaries and secondaries.

Mr. H. F. Witherby remarked that he had drawn attention to these dark birds collected by Admiral Lynes (Ibis, 1928, pp. 599–600) in the Yebala in March, but owing to lack of specimens in freshly moulted plumage he was unable to determine whether they differed from Portuguese specimens and those from Brittany described as *S. u. aremorica*.

Lord Rothschild sent the following note:—

When describing the three Cassowaries, *Casuarius jamrachi*, *C. doggetti*, and *C. hagenbecki* (Bull. B. O. C. xiv. 1904, pp. 39, 40), which had four and five wattles, I suggested these birds came from the Admiralty Islands. After the Eichorn brothers had collected on the main Admiralty Island, and also various German collectors, I withdrew this statement, as all these collectors stated that there were no Cassowaries on the Admiralty Islands. I have now been informed by Mr. Goodfellow and Mr. Shaw Mayer that they

met Mr. Chase, one of the resident magistrates in New Guinea, who had been Administrator on the Admiralty Islands for several years, and he declared he had eaten Cassowaries on these islands, and that they were often brought in by the natives. As four- and five-wattled Cassowaries have never been obtained so far in New Guinea, I now feel convinced that my original supposition that these three Cassowaries came from the Admiralty Islands was correct.

Mr. P. F. Bunyard exhibited a remarkable clutch of five eggs of the Chaffinch (*Fringilla c. cœlebs*) from Surrey, and made the following remarks :—

The nest in which the eggs were found was typical, situated not more than 3 feet from the ground, in a stunted white-thorn bush, and both parent birds were present.

The eggs were normal in size and shape; the ground-colour showed rather more olive-green than typical eggs; the large ends were heavily capped with rich reddish-brown, the superimposed vein-like markings being of a much darker and richer shade, and almost wholly confined to the large ends; the lower half of the eggs was practically unmarked, the typical round spots showing a penumbra being absent.

Mr. Bunyard further stated that the unique series of Chaffinches's eggs in which the above-mentioned clutch was exhibited had taken him forty-five years to collect, and though he had seen a great number of clutches *in situ* only four clutches were self taken.

The following clutches were of outstanding interest :—

A clutch of four pure white or leucitic eggs were from the collection of Dr. Williams, this being exceedingly rare with Chaffinches's eggs, but frequently occurring with those of the Bullfinch (*Pyrrhula p. nesa*), and occasionally with those of the Greenfinch (*Chloris c. chloris*). It had also been recorded by himself for the Crossbill (*Loxia c. curvirostra*), and was fairly common with the House-Sparrow (*Passer d. domesticus*).

A clutch of five very beautiful eggs with a pale blue ground and exceptionally large underlying markings of greyish-mauve, the superimposed markings being almost absent.

A clutch of four, not unlike the first clutch of the Chaffinch described, the markings, however, in this case being in the form of zones round the greater axis ; another clutch of four had a pale greyish-blue ground, with ash-grey underlying markings. A perfect clutch of five cyanic or self-coloured eggs were similar in shade to Wheatear (*Œnanthe œ. œnanthe*) eggs. A clutch of five were as near to true erythrism as probably the eggs of this species attained, the usual greenish-blue tint being absent.

Clutches of the so-called Bullfinch form were well represented, but in Mr. Bunyard's opinion there was not, as he had seen stated, any possibility, to the practised eye, of confusing the eggs of the two species, as the nature and distribution of the pigment differed considerably, though occasionally a similarity could be found in the ground-colour. Bullfinch eggs did not show the thinly-suffused reddish clouding, neither did they show the round spots with a penumbra so characteristic of Chaffinches's eggs. Those of the former usually showed less green in the ground-colour, and when a series of each were placed side by side the difference in shade was obvious.

Mr. T. H. Harrisson made an announcement concerning a new 'Journal of Animal Ecology.' This periodical is sponsored by the British Ecological Society, and will contain articles, notes, and reviews concerning all aspects of census work, migrations, numerical fluctuations, and scientific field-work in every branch of zoology. The first number, to be published shortly, will probably contain four bird-articles, and ornithology will always be represented to a considerable extent. Subscribers are especially required at this stage, as the future of the journal will depend on the ready support of naturalists throughout the country. Those interested should write to Mr. Harrisson or to the Editor—Mr. C. S. Elton, Department of Zoology, University Museum, Oxford.

NOTICES.

The next Meeting of the Club will be held on Wednesday, February 17, 1932 (instead of Wednesday, February 10, which is Ash Wednesday), at PAGANI'S RESTAURANT, 42–48 Great Portland Street, W. 1. The Dinner at 7 p.m.

Members intending to dine are requested to inform the Hon. Secretary, Mr. C. W. Mackworth-Praed, 51 Onslow Gardens, London, S.W. 7.

Members are reminded that the subscription for the Session, £1 1s. 0d., is now due. The Treasurer hopes that those not paying by banker's order will now send him this without further request.

Members who intend to make any communication at the next Meeting of the Club should give notice, as early as possible, to the Editor, Dr. G. Carmichael Low, 86 Brook Street, Grosvenor Square, W. 1, so that the titles of their contributions may appear on the Agenda List. All MSS. for publication in the 'Bulletin' must be given to the Editor before or at the Meeting.

The attention of Members is drawn to the fact that the March Meeting, which will be held on Wednesday, March 9, 1932, in conjunction with the British Ornithologists' Union, will be devoted principally to lantern-slides. The Hon. Secretary will be glad to hear from any Member who has slides to exhibit in order that the necessary arrangements can be made.

Agenda.

1. Mr. A. L. Butler will exhibit specimens of imperfectly developed Cock-Pheasants.
2. Dr. P. R. Lowe will exhibit a specimen of a hybrid between a Bantam and a Pheasant, and will make some remarks upon *Phasianus colchicus satscheuensis*.
3. Major A. G. L. Sladen will show a series of eggs of the Ivory Gull.
4. Mr. W. L. Sclater will exhibit a new race of *Hyliota*.
5. Mr. W. P. Bunyard will read a short paper on the breeding status of the Garganey in Essex, and exhibit mounted specimens of the down and nest-feathers.

Bird Room.

PURCHASED

BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB.

No. CCCLVII.

The three-hundred-and-fifty-second Meeting of the Club was held at Pagani's Restaurant, 42–48 Great Portland Street, W.1, on Wednesday, February 17, 1932.

Chairman : Major S. S. Flower.

Members present :—W. B. Alexander ; D. A. Bannerman ; F. J. F. Barrington ; Miss M. G. S. Best ; Sir J. Rose Bradford ; P. F. Bunyard ; A. L. Butler ; Hon. G. L. Charteris ; Lt.-Col. A. Delmé-Radcliffe ; A. H. Evans ; A. Ezra ; Miss J. M. Ferrier ; A. G. Glenister ; Hon. M. Hachisuka ; Rev. J. R. Hale ; Col. A. E. Hamerton ; B. G. Harrison ; Dr. J. M. Harrison ; Dr. K. Jordan ; Rev. F. C. R. Jourdain ; N. B. Kinnear ; Miss E. P. Leach ; Dr. G. Carmichael Low (*Editor*) ; Dr. P. R. Lowe ; Dr. N. S. Lucas ; C. W. Mackworth-Praed (*Hon. Sec. & Treas.*) ; T. H. McKittrick, jun. ; J. H. McNeile ; Dr. P. H. Manson-Bahr ; G. M. Mathews ; E. G. B. Meade-Waldo ; J. L. Chaworth Musters ; C. Oldham ; Lord Rothschild ; W. L. Sclater ; D. Seth-Smith ; M. H. Simonds ; Major A. G. L. Sladen ; Marquess of Tavistock ; B. W. Tucker ; Miss E. L. Turner ; H. F. Witherby.

Guests :—Miss E. J. Delmé-Radcliffe ; J. G. Mavrogordato.

The main part of the Meeting was devoted to a display of abnormal Pheasants (*Phasianus* etc.)—females assuming male or neutral plumage and males with perversion of plumage.

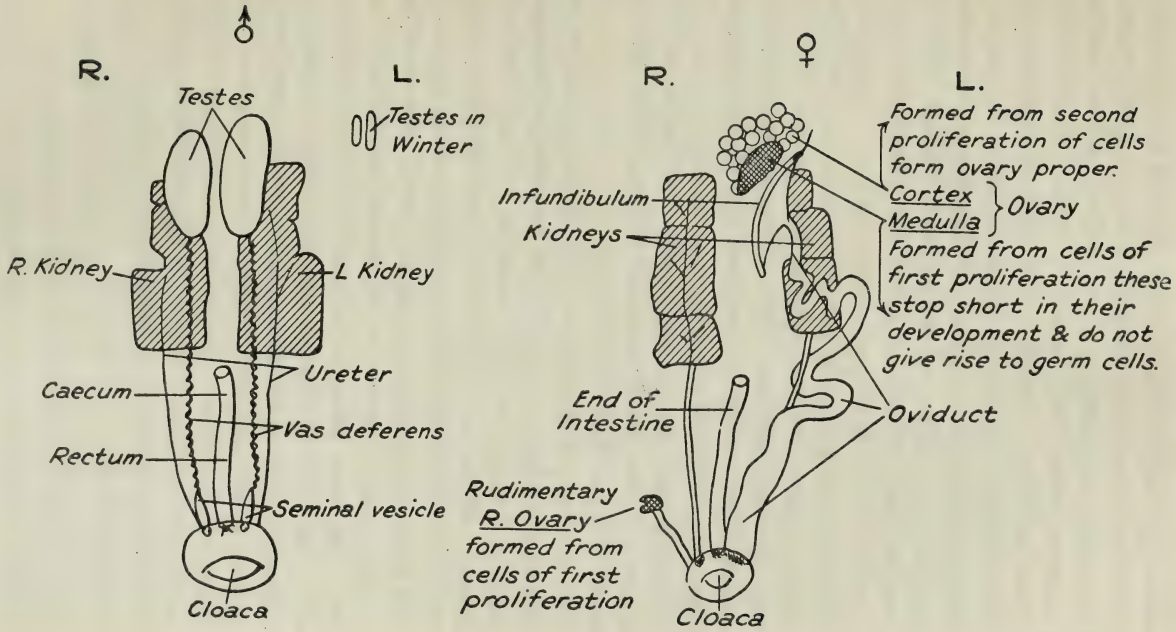
Dr. G. Carmichael Low gave a short lecture to introduce the subject, illustrating this with diagrams and microscopic specimens of normal and abnormal ovaries and testes. He said that he would not go into the subject in great detail, as Mr. B. W. Tucker had already done this in an excellent review (Bull. B. O. C. xlviii. 1928, pp. 98–116).

Before dealing with the question of sex reversal, he said he would run over the normal anatomy of the reproductive organs of a bird for the benefit of those present who might not have studied anatomy in detail. In the male the reproductive organs consisted of two testes or gonads*. These lay on the posterior aspect of the abdomen in front of the kidneys, and a vas deferens ran from each to the cloacal opening. As a rule the left testis was somewhat larger than the right. In the breeding season the testes swelled and became of considerable size, while in the non-breeding season, in winter, a functional atrophy took place, and then they became very small, so small that in some of the smaller Finches it might be difficult to sex the specimen.

In the female there was, in the vast majority of birds, only one ovary, or gonad, this being situated on the left side. From here the eggs passed into the infundibulum and then through the oviduct, where they received their albumin and shell, and so passed out through the cloaca. On the right side the ovary was only rudimentary, as was also the oviduct, and they were difficult to see. Modern research work had shown that the ovary was formed in two distinct stages. There was a first proliferation of cells corresponding to that which gave rise to the testis in the male, but this stopped short and did not give rise to germ-cells. This formed the medulla. The cortex, on the other hand, the ovary proper, was formed from a second proliferation of cells, and it was in this that the ovarian follicles developed. The atrophied right gonad was also developed from the first proliferation of cells, but further development was inhibited, and no cortex was formed. As

* The zoological term "gonad" is now often used for the reproductive organs of either sex, viz., testis or ovary.

Anatomy of Reproductive Organs of a Bird.
(Ventral view.)



Mr. Tucker described it in his review, " the tissue forming the undeveloped right gonad and the medulla or core of the ovary constitutes a sort of potential testis, and if the inhibition is removed will develop along testis-like lines and produce a hormone resembling the male hormone in its effect."

Bearing this in mind, then, the experimental work of castrating male and female fowls would be more readily understood, and such experiments threw much light upon what happened in a state of nature when female Pheasants, for example, began to assume a male-like plumage. If a chicken or cockerel was castrated, certain definite changes occurred. The comb and wattles of the bird became pale and diminished in size, while the male sexual instinct was lost, and the birds did not crow and fight with each other. Weight was increased just as in the case of castrated mammals. The plumage was not influenced by castration except that it became looser and more luxuriant in growth, the long coloured feathers of the neck, shoulders, rump, and tail remaining as in a normal cock. No hen-feathers develop.

In the case of a castrated hen (one in which ovariectomy had been performed), after the next moult the plumage showed definite changes, the bird assuming the long feathers of the plumage of the cock or capon. Anatomically in these birds it was found that the rudimentary right ovary began to develop and a testis-like tissue originated from it instead of an ovary.

When one dissected examples of female birds in nature assuming male plumage, trauma, disease, or atrophy of the ovary were always found, with generally an excess of black pigment, and upon the amount of degeneration present depended the degree of change that was seen. In certain instances testicular development took place, either in the medulla of the ovary or in the right rudimentary organ, and Dr. J. M. Harrison had even shown a testicular development in the adrenals. The absence of the ovarian hormone alone, however, would seem to be capable of producing the male-like or, perhaps rather better, neutral characters.

Many such cases had been recorded and several specimens had been dissected and histologically examined, and there was no doubt about the facts. On the other hand, all the experimental evidence of castrating birds went to show that

no male assumed female feathers as a result. Wild examples, then, of males with female plumage had to be explained by some other means, and some early developmental abnormality or a hermaphroditic condition was probably the most likely cause of the phenomenon.

In these examples of perversion of plumage it was of the utmost importance that a careful dissection should be performed in every instance and histological examinations made of the gonads and other tissues. This had been done in some of the specimens exhibited, and details of these were given in the list.

Mr. B. W. Tucker supplemented Dr. Carmichael Low's remarks, and gave an interesting description of some new experimental work which had recently been done on sex reversal.

He said that he did not think that Lord Rothschild's male Pheasants showing female feathers could be admitted as cases of males undergoing transformation in a female direction. Such an interpretation would be completely at variance with the results and conclusions of modern experimental investigations.

The ovary of a bird, as Dr. Carmichael Low had said and illustrated, arises in two distinct stages. The first proliferation of cells gives rise to the medulla or core of the ovary, which has the histological character of an embryonic testis. The second proliferation forms the outer part or cortex, the functional ovarian tissue which gives rise to the eggs. The rudimentary right gonad in the female is also formed by cells of the first proliferation, and its structure is similar to that of the ovarian medulla, further development being normally checked before it begins to form any cortex at all. Thus, when the ovary is removed and the rudimentary right gonad undergoes a compensatory hypertrophy, it is intelligible that it should give rise to a testis-like organ, and in the same way, if on removing the ovary a little of the medulla is left behind, the regeneration of this fragment will give rise to a testis-like organ on the left. In the male there is nothing analogous. We do not find the testis forming in two parts, of which the first has the character of a rudimentary ovary, or anything

of that kind. These and other considerations, in conjunction with the fact that the neutral or sex-less type of plumage is male-like, make it difficult to see how any pathological or other changes could bring about the development of female characters in a previously normal male bird.

Lord Rothschild's birds are of great interest, but it appears far more probable that they owe their peculiarities to a partially hermaphroditic or gynandromorphic condition, due to an inherent constitutional abnormality, than that they are undergoing a transformation in any way analogous to the transformation towards the male type which surgical or pathological destruction of the ovary may produce in females.

Mr. Tucker added that while dealing with this subject he wished to draw attention to an advance which had been made since his "Review of Recent Work on Sex in Birds" appeared in the 'Bulletin' for 1928*. The position then was that in an extensive investigation by Domm in Chicago the testis-like organ developed from the rudimentary right gonad in a very large number of ovariotomized fowls had proved to be invariably sterile, while Benoit and Zawadowsky, in France and Russia respectively, claimed to have obtained three cases, out of only about a dozen operated birds, which actually showed complete, though more or less abnormal, spermatogenesis going on in this organ. The outcome of the large-scale American investigations certainly seemed to throw doubt on the results of the European workers. It was observed, however, that whereas practically all Domm's birds were operated on at an age of three months or over, the birds used by Benoit and Zawadowsky were much younger, and it appeared possible that the discrepancy in the results might be due to this age-difference.

Domm therefore repeated his experiments on a large number of very young birds. At the time his paper† was published eight cases had been found, out of about a hundred examined, in which active spermatogenesis was going on in the compensatory right gonad. The American and European results are thus reconciled, and it is established that a real sex reversal

* Bull. B. O. C. xlviii. 1928, pp. 98–116. This paper should be consulted for a more comprehensive treatment of the whole subject.

† Archiv fur Entwicklungsmechanik, Bd. 119, 1929, pp. 171–187.

can be produced artificially if the birds operated on are young enough. The result fits in very satisfactorily with what is known about the development of the right gonad in normal female birds. During about the first three to four weeks of life primordial germ-cells—the cells from which the functional reproductive cells arise—are present in this organ, but after that they degenerate and disappear. It seems, then, that although the right gonad always develops into a testis-like organ if the ovary is removed, it can only actually produce spermatozoa if primordial germ-cells are still present in it at the time of the operation.

The fact that, although ovariotomy results in the appearance of cock-like plumage, the development of the compensatory testis-like organ is accompanied by a re-assumption of *hen*-feathering is still distinctly puzzling and anomalous, and seems to indicate that the processes in these experimentally sex-reversed birds must differ in some rather important respect from those involved in cases like Crew's sex-reversed hen (see the 1928 paper), which developed and retained cock-plumage as well as the other male attributes. A discussion of possible, and for the most part very hypothetical, explanations would hardly be profitable at present, but as this particular problem is under active investigation at the moment further light upon it may be expected in the near future.

List of Pheasants exhibited.

1. Pheasant ♀ assuming male plumage (Mr. A. L. Butler).

[No sign of ovary. Oviduct somewhat atrophied, and a small body the size of a pea found blocking the lumen. Histological examination showed this to be an impacted ovum which had undergone a certain degree of calcification.—G. C. L.]

2. Pheasant ♀ assuming male plumage (Mr. A. L. Butler).

[No histological examination conducted.]

3. Pheasant ♀ assuming male plumage (Mr. N. B. Kinnear).

[Macroscopically no sign of ovary. Object resembling a piece of fine catgut in line of oviduct. Histological examination of ovarian site revealed the presence of the remains of a degenerated ovary with embryonic testicular tissue

forming. Transverse section of catgut-like material showed a very much atrophied oviduct.—G. C. L.]

4. Pheasant ♀ assuming some male plumage and with one spur (Col. Stephenson Clarke's bird: shown by Dr. P. R. Lowe).

[Macroscopically a much pigmented, degenerated ovary noted. Microscopically (sections) marked degeneration of ovary, mainly of an atrophic nature; much black pigment present.—G. C. L.]

5. Pheasant ♂ with some hen-like feathers present (Mr. Lodge's bird: shown by Dr. P. R. Lowe).

[Dissection demonstrated very small testes present. Sections of these microscopically showed considerable increase of the interstitial tissue and marked atrophy of the tubules. Some of this might have been functional, however, as the bird was shot in January, when the testes are normally much smaller than in the breeding season.—G. C. L.]*

6. Microscopic section of ovary of Pheasant ♀ assuming male plumage (G. Carmichael Low).

[Section showed marked atrophy of ovary, with destruction of all ovarian follicles. Extreme fibrosis, with much deposit of black pigment.—G. C. L.]

Lord Rothschild exhibited the following examples of perversion of plumage in Pheasants:—1 ♀ *Gennæus nycthemerus* (Linnæus) in full ♂ plumage; 1 ♀ *Chrysolophus amherstiæ* (Leadbeater) in partial ♂ plumage; 2 ♀♀ *Syrmaticus reevesi* (J. E. Gray) in partial ♂ plumage; 1 ♂ ditto with one spur and one gonad in partial ♀ plumage; 6 ♀♀ cross-bred *Phasianus colchicus* in partial and complete ♂ plumage; 4 ♂♂ ditto in partial ♀ plumage, with pair of spurs; and 1 ♂ ditto with one spur and totally mixed and aberrant plumage.

Dr. J. M. Harrison exhibited two cock Pheasants showing perversion of plumage, and made the following remarks:—

* Since writing the above, a microscopical examination of sections of the testes of a series of birds dying in the Zoological Gardens in February has been made. In none of these, though some were aged, was the same amount of interstitial tissue and glandular atrophy found as in the Pheasant above.—G. C. L.

The two cock Pheasants (*Phasianus colchicus*) exhibited show the assumption of a certain amount of hen-feathering. Sections of the testes of both examples appear to show some increase of the interstitial tissue when compared with control material. There are, as is well known, two domestic breeds in which the males are normally henny-feathered, viz., Campines and Sebright Bantams. In the testes of these birds the interstitial tissue is plentiful, and castration causes them to assume male plumage. These interstitial (luteal) cells were described by Boring and Morgan *.

Another experimental finding which appears to have a definite bearing upon cases of hen-feathering in male birds is the fact observed and recorded by Torrey and Horning † that young cockerels fed on thyroid gland develop female feathering, and it is more than likely that there are extra-gonadal factors concerned in these cases.

The blackish-brown amorphous substance observed in the atrophied ovaries of hen Pheasants which have assumed the neutral phase of plumage is to be seen also in normal ovaries of this and other species. The increase in this substance noted in these atrophied cases is, in my opinion, more apparent than real; it is always more in evidence during the involution period of the ovary, and is, of course, especially so where the ovarian tissue has become much condensed and contracted, as is usual in the atrophied state.

Major A. G. L. Sladen read the following note upon the eggs of the Ivory Gull (*Pagophila eburnea*), and exhibited a series of specimens :—

On July 16, 1931, Capt. Schjelderup, of s.s. 'Quest,' succeeded in getting his vessel as far as the northern point of White Island, 80° 12′ N., 34° E. That this was a somewhat perilous journey is shown by the fact that it was only possible to spend about an hour on shore before pack-ice began to drive in at full speed, and the landing party were obliged to return hastily to their ship and go south. With the exception of

* Morgan, T. H., Proc. Soc. Exper. Biol. & Med. xiii. 1915, p. 31; Journ. Gen. Physiol. i. 1918 (with A. M. Boring); Endocrinology, iv. 1920, p. 381.

† Torrey and Horning, Proc. Soc. Exper. Biol. & Med. xix. 1922.

a small strip of land at the extreme northern and southern ends, the island is described as being a perpetual glacier.

So far as is known, the ' Quest ' is the only vessel which has ever succeeded in reaching the northern end of the island at this time of the year. This was due to the exceptionally mild and open season of 1931 presenting conditions which have not been known in the Arctic for the last twenty-five years or more.

It was on the small strip of land, at the northern end, that Capt. Schjelderup found on July 16 no less than four breeding colonies of the Ivory Gull (*Pagophila eburnea*), each colony being occupied by about a hundred pairs, more or less. This, of course, must be taken as a very rough estimate, as there was no time to make careful observations. Altogether forty eggs were taken, but some of them were damaged in handling and transit, and not a few were spoiled entirely by being only partially blown, with the result that the shells became rotten, and it was impossible to preserve them as specimens in any way. In spite of this, however, it was possible to take measurements of thirty-two eggs. These average 61·84×42·94 mm.—

Maximum: 66·7×43·7 and 58·4×44·3 mm.
Minimum: 57·0×41·9 and 57·2×41·2 mm.

The usual clutch appears to be two eggs, whilst occasionally nests containing three were found, but unfortunately a number of nests containing one egg only were taken, in the hope, apparently, that they would prove fresh and be more easily blown.

All these eggs have been sent to me, and it became apparent, on cleaning them out, that not only the sets containing two and three eggs, but also many of the single eggs had been partially incubated, despite the fact that Capt. Schjelderup in the data supplied with them describes them all as " fresh." Apparently this term has been used to indicate that the eggs could be blown.

The birds placed their nests amongst the shingle and stones on the flat shore and collected drift wood, which was the only nesting material available, to which they added a quantity of feathers.

Owing probably to being totally unused to human intrusion, they sat very closely, and when approached left their eggs only with the greatest reluctance, standing up in their nests and trampling about in their agitation to such an extent that they broke a number of their own eggs. So fearless were they in attacking the intruders by stooping at them that the latter had to use sticks to protect themselves. The photographs shown, taken with an ordinary camera, depicting the birds sitting upon their nests only a few feet from the photographer, give some idea of their fearlessness. Apparently no young were observed, and a very large number of nests contained only one egg.

Taken as a whole, the eggs of this species are readily distinguished from those of other Gulls, being larger than those of the Kittiwake (*Rissa tridactyla*), and hardly as large as those of the Lesser Black-backed Gull (*Larus fuscus*) The usual ground-colour is a dull green, and the surface markings do not differ materially from normal eggs of the last-named species, but there is a conspicuous absence, at any rate amongst the specimens from this locality, of any zoned or abnormally marked types. One of the strongest and most uniform points of difference between the eggs of this species and those of other Gulls is their oval shape as opposed to the somewhat pointed eggs of all other species which approach them in size. Again, the shell-texture is rough and, though comparable with that of the Kittiwake, actually rougher. These features, taken together, form a fairly accurate means of identification, and certainly a typical egg of *Pagophila eburnea* cannot be mistaken for that of any other species.

Mr. P. F. Bunyard read the following paper on the "Breeding Status of the Garganey in Essex":—

As the title of my paper implies, I am dealing only with the breeding records for the Garganey (*Anas querquedula*) in Essex.

At the time Mr. Miller Christy published 'The Birds of Essex' (1890) there were, apparently, no breeding records for the county, and he says (p. 203) that the Garganey is "an uncommon visitor, chiefly when on migration." Howard Saunders

(1899) does not include Essex, neither does Millais (1902) or the ' Practical Handbook of British Birds ' (1924.)

For some years prior to 1923 my friend Mr. H. R. Tutt had spent a considerable time on certain Essex marshes, but it was not until that year, while searching for the nests of the Redshank (*Tringa totanus totanus*), that he flushed a Garganey Duck from a nest with eleven eggs; this was on April 29, a very early date for incubated eggs. The spring, however, was a mild one, and there was little water on the marshes. One egg, nest-feathers, and down were immediately despatched to me for identification, and there was no difficulty in deciding upon the species to which the material belonged, all of which were typical (' British Birds,' xvii. 1924, p. 280).

On May 12 I had the pleasure of seeing this nest *in situ* and of collecting a further supply of feathers and down. The nest was a shallow " scrape " in rather coarse grass, and was placed almost in the centre of a large meadow, near a slight gully.

Each season we have visited these marshes, putting in a considerable amount of time watching and searching, and on every visit we saw Garganey. On one occasion three drakes were seen together on the water, but it was not until May 10, 1930, that Mr. Tutt again succeeded in finding a nest with four eggs, carefully covered with withered grass; there was only one large feather and no down, but the eggs left no doubt as to the species to which they belonged.

This nest was also placed almost in the centre of a large, much-grazed meadow, and again close to a drainage gully, about ninety paces from water. On May 17 we again visited the nest and had a splendid view of the sitting bird, and we agreed that the yellowish-white eye-stripe was very much more conspicuous than many plates and illustrations show. It was, in fact, almost as conspicuous as it is on the drake. After we had thoroughly examined the bird I parted away the grass which nearly concealed her, but she was in no great hurry to flush. We then flushed her, and found that she had completed a clutch of eleven eggs and deposited a number of feathers and a quantity of down, all of which were typical; the " scrape " was $1\frac{1}{2}$–2 inches deep.

We were again on these marshes on May 10, 1931, and were working at some distance apart when I noticed Mr. Tutt apparently examining a nest. On joining him I found that he had again found an undoubted Garganey's nest; but, unfortunately, it had been destroyed by a Crow or Rook, and judging from the quantity of egg-shell, feathers, and down there were probably four to five eggs at the time of the raid; all the materials were typical, and the nest was not more than seven paces from water.

Earlier in the day we had seen a Garganey on the water, and later in the day, while resting, a bird came over from the ditch and settled on the water only a few yards distant, and we had a splendid view, with our glasses, of what appeared to us to be a very pale drake, probably the bird belonging to the destroyed nest, which was at no great distance.

In 'British Birds,' xxiv. 1930, p. 108 there is a short article by Mr. P. H. Meeson on the "Breeding Status of the Garganey in Essex." He says, apparently without any evidence, "I believe that it has nested regularly since 1912." In my opinion the present status is due to the War, birds having been driven from their usual breeding haunts on the Continent in much the same way as the Sandwich Tern (*Sterna s. sandvicensis*), when breeding colonies were established for the first time on the east coast. The Garganey probably established itself as a breeding species about 1915, but owing to its similarity to the Teal (*Anas c. crecca*) it was generally overlooked until about 1923. Since that date it has apparently increased in Norfolk, and has been recorded as breeding in Somerset and Dorset.

Two records for breeding are given in 'A History of the Birds of Essex,' by W. E. Glegg, which are prior to Mr. Tutt's 1923 record, which I claim, on his behalf, was the first authentic record for the county scientifically verified by collected material, *i. e.*, eggs, feathers, and down. Of the two records above mentioned, the first (1896) is Mr. Meeson's, who states that a brood of six was hatched on the Crouch; the second is attributed to Dr. N. F. Ticehurst (1909), who is reported to have stated that Mr. A. B. Farn had found it breeding. In neither of these records is there any material evidence to

support them, and surely it should hardly be necessary to say how very important it is, with records of this nature, to test the strict admissibility of the evidence.

Heatly Noble said "the Garganey is probably the rarest of the Ducks which breed regularly in this country" ('British Birds,' ii. 1908, p. 22), consequently it is very gratifying to know that the species is on the increase, and, like the Shoveler (*Spatula clypeata*), it will probably continue to extend its breeding range. Mr. Meeson very rightly states that "the nest is very difficult to find" ('British Birds,' xxiv. 1930, p. 108), and we can fully endorse that statement. An enormous amount of work is necessary on these extensive marshes, and owing to the fact that the Duck is a very close sitter, and will not flush until almost trodden on, it is only found by the merest chance. The Duck does not commence to sit until the clutch is nearing completion, though I suspect that they may brood them at night, just previous to and after laying.

At least a third of the nests of Ducks, Redshank, Plover, Snipe, etc., on these marshes are destroyed by Rooks and Crows, and we have watched them quartering every inch of the marsh in their quest of eggs. Nevertheless we find the R.S.P.C.A. deploring and endeavouring to stop the shooting of young Rooks.

I exhibit nine plaques of mounted nest-feathers and down of the Garganey, which for the purpose of this paper I have lettered A–I; three are from material collected in Essex, four from Kent, and two from Hungary.

The late Mr. Heatley Noble who was one of the pioneers in this class of comparative study, described the nest-feathers of the Garganey as "light grey, with dark central patches which do not extend either to the tip or edges" ('British Birds,' ii. 1908, p. 22, pl. i. figs. 6). This description and the feathers figured may safely be accepted as representing the type, but by no means the whole range of variation to which they are obviously subject, as the specimens exhibited amply prove. At least three other distinct patterns are easily recognized, but it is interesting to note that in all the nests examined only one pattern is present in each individual

nest ; no matter how many feathers the nest contained, I have always found the pattern constant.

With many other species, the Pintail (*Anas a. acuta*) in particular, two or three distinct-patterned feathers may be sometimes found in a single nest.

Plaques A, B, and C are typical, and fit in well with Noble's description and figure. B is material from Kent collected and kindly given to me by Dr. Norman F. Ticehurst, and is from one of the first two nests recorded for the county of Kent (' Birds of Kent,' by Dr. Norman F. Ticehurst, p. 357).

Plaque A is from material collected in Kent, for which I have to thank Colonel Smeed. C is from material collected in Essex by Mr. Tutt and myself. The great difference that you will see in the coloration of the feathers and down in B and C is due to age. The former was collected in 1900, the latter in 1930. Unfortunately, this change of colour occurs with all nest-feathers and down of Ducks and Geese, and it is important that it should be taken into consideration when describing or making comparisons.

Plaques D and E are from material collected in Kent, and are not from the same nest, but, in my opinion, judging from the dates and similarity in the feathers, they are from the same bird. These feathers differ from the type in having the centrum joined up with the downy portion, *i. e.*, it is not separated by a white patch; consequently a complete centrum is not formed. They are smaller, but not unlike those of the Wigeon (*Anas penelope*).

Plaques F and G are material from Hungary and Essex; the latter was collected by Mr. Tutt and myself. These feathers differ considerably from those above mentioned, and do not show a complete centrum. The pattern reaches almost to the terminals, where it is broadest; the centre of the downy or basal portions is whitish, as in nearly all the other forms.

Plaques H and I are also material from Hungary and Essex, the latter collected by Mr. Tutt and myself. These are interesting, and show a distinct break away from the type, the centrum being split into two, forming an oval patch

on either side of the calamus, which is more or less separated from the downy portion by a white bar.

Too much importance has been attached to the white tips of the Garganey down. Other downs show this, but as a rule they are not so conspicuous or so long. The white tips of the Garganey down average about 2–3 mm.; it gets less conspicuous when faded. In the many nests examined I have, however, never found the down of the Teal (*Anas c. crecca*) show any white tips, but frequently it is quite as small as that of the Garganey. The radii of the former appear to be somewhat shorter, and lie at a different angle.

(Mr. Bunyard also exhibited six plaques of mounted nest-feathers of the Teal for comparison.)

Lord Rothschild exhibited a ♂ Shoveler, *Spatula clypeata* (Linnæus), which had on the cheeks a curved lunate and narrow white line, exactly in the same place, and similarly curved, as the white lunate band on the cheeks of *Spatula rhynchotis rhynchotis* (Latham), and *Spatula rhynchotis variegata* Gould from Australia and New Zealand. He exhibited a normal ♂ Shoveler and one each of *Spatula rhynchotis* × *variegata* for comparison. The specimen with the white lines was shot at Tring on February 2, 1932.

The Hon. M. Hachisuka exhibited a specimen of

Chætura celebensis Sclater.

The present species, he said, is one of the rarest Swifts known; it was described as early as 1865, and only a few specimens have been secured, viz., two or three from Celebes, two from Basilan, one in Negros, two in Mindoro, and one in Luzon.

The specimen I exhibit to-night is the one from Negros, loaned from the Edinburgh Museum through the kindness of Mr. P. H. Grimshaw, Curator of the Natural History Department, and is an unique example existing in this country.

In comparing this specimen with the coloured plate in 'The Birds of Celebes,' i. 1898, pl. xii., by Meyer and Wigles-

worth, I do not find any difference at all except in the round patch between the bill and the eye, which is light brown and intermediate in colour in comparison with the figured plate. The Edinburgh specimen, collected by Keay, is presumably an adult female, the measurements being : wing 212 mm. ; tail 67 mm. ; bill 10 mm. ; tarsus 19 mm. The female figured is also an adult, and shows no signs of immaturity.

R. C. McGregor ('Philippine Journal of Science,' D. xiii. 1918, fig. 9, p. 17) described a species of large Spine-tailed Swift and called it *Chætura dubia*, from Mindoro and Luzon, but he remarks that he had not seen *C. celebensis*.

On reading through the description of *C. dubia* it occurs to me that it belongs to the same species as *C. celebensis*, but differing in having more violet gloss on the metallic-blue feathers, and the white portions on the under side of the wing replaced by smoky-brown and smaller patches.

For the present it is best to consider *dubia* and *celebensis* as races :—

C. c. celebensis Sclater. Celebes, Basilian, Negros.
C. c. dubia McGregor. Luzon, Mindoro.

Dr. Percy R. Lowe exhibited a hybrid between the genera *Phasianus* and *Gallus*. Brit. Mus. Reg. no. 1932.1.2.1.

This specimen had been presented to the British Museum by Mr. Stafford Walter of Horncastle, who had given the following account of it, in letters, to Dr. Lowe :—

"The father was a "Black-necked English Pheasant," reared in captivity from an egg taken from a wild Pheasant's nest. The hen mother was bred by me, and was by a Manx or tail-less Bantam cockerel × a Golden-pencilled Hamburg hen. The cock Pheasant and the Hen referred to occupied the same pen, and no cockerel of any breed had access to same. I bred five hybrids and reared three, two of which I still possess. There was a big percentage of unfertile eggs.

" My hybrids had a good deal of the carriage of the pheasant, not so upright as a fowl. The hen that bred them was a cross-bantam, and their hybrid size is a little larger than a cock Pheasant."

Mr. W. L. Sclater sent a description of a new race of Flycatcher of the genus *Hyliota* from Tanganyika Territory:

Hyliota australis usambara, subsp. nov.

Male, resembling *H. a. australis*, but much smaller, wing 65 against 71 ; the white of the rump is well marked, there is no white along the outer web of the outer tail-feather, and the white patch on the wing formed by the inner greater coverts is very conspicuous. In the female the under parts are more richly coloured and almost tawny, there is a very narrow and inconspicuous white edging to the outer tail-feathers and also along the outer edges of the inner secondaries, but nothing like so conspicuous as in *H. flavigaster barbozæ*, which, in addition, is steely blue-black on the back and not dull sooty-black as in *H. australis* ; this last is probably not quite adult, as it is marked " ♀, sexual organs undeveloped." Iris black, upper mandible black, lower mandible slaty-blue with black tip, feet slate-black.

Measurements.—♂ : wing 65, tail 39, culmen 9, tarsus 16 mm. ♀ : wing 62, tail 38, culmen 80, tarsus 15 mm.

Type.—A male collected by Mr. R. E. Moreau at Amani, Usambara district, Tanganyika Territory, on 2. ix. 31, in a coffee plantation at 3000 feet. Brit. Mus. Reg. no. 1932.1.11.1.

A female, probably immature, was taken at the same place on the same day.

Dr. C. B. Ticehurst forwarded the following communication :—

The Eastern Baya has been very unfortunate in its scientific name ; the older writers have called it *Ploceus baya* Blyth. Blyth named the Indian Weaver *baya* (Journ. Asiat. Soc. Bengal, xiii. 1844, p. 945), and his reference to the J. A. S. B. xi. pp. 871–2 shows that he referred to the bird now known as *P. philippinus*, of which it therefore becomes a synonym. In 1886 Reichenow adopted Hodgson's nomen nudum *passerinus* with description, and this name was used in the ' Fauna of British India ' (ed. ii.), iii. p. 70. In the ' Journal of the Bombay Natural History Society ' I pointed out that *passerinus* could not be used for this bird, as prior to Reichenow it had

already been made a synonym of *P. baya* in Horsfield and Moore's Catalogue, and according to Mr. Stuart Baker ('Fauna of British India' (ed. ii.), vii. p. 219) had also been made a synonym of *Ploceus flaviceps* Swainson by Gray (Cat. Birds Nepal). He therefore adopted the name *Ploceus atrigula* Sharpe (Cat. Birds Brit. Mus. xiii. 1890, p. 491, ex Hodgson MS.). This, however, cannot be used, as it was made, prior to Sharpe's adoption, a synonym of *P. baya* in Horsfield and Moore's Catalogue, p. 515.

In 1902 Dr. Hartert described and named the Malay form of the Eastern Baya as *Ploceus infortunatus* (Nov. Zool. ix. 1902, p. 577). Now the bird which occurs in Burma and westward to Nepal is not quite the same as the Malay bird, being on the whole less rich in colour above and not so dark rufous below, and is also usually larger.

12 ♂♂, Malaya, measure : wing 67·5–72 mm.

12 ♂♂, Burma, measure : wing 72·5–76 mm.

N.B.—Single birds from Lower Pegu are as small as most Malay birds (wing 69–71 mm.), but most are larger and on the whole paler.

Since, as I have shown above, this Eastern Baya has no name available I propose to name it

Ploceus infortunatus burmanicus, subsp. nov.

Type.—♂, Akyab, April 6, 1876. J. Armstrong Coll. Brit. Mus. Reg. no. 1887.7.1.1626.

Type-locality.—Burma, north of 19° N.

Corrections.

Lord Rothschild made the following correction :—

He said that when he described *Sylvia undata maroccana* at the January meeting (*antea*, p. 82) he overlooked the fact that Dr. Hartert had previously used the name *maroccana* for the Moroccan form of *S. deserticola* ; he therefore renamed the Morocco form of the Dartford Warbler *Sylvia undata tingitana*. He also said that since the last meeting he had seen a further ♂ and 2 ♀♀ from the Balearic Islands, and these were still more strongly marked with mummy brown, so that he was

inclined to think the Balearic is different from the Moroccan race, but he could not make sure without seeing worn specimens.

Dr. J. M. Harrison sent the following correction to his note on *Phasianus t. satscheuensis* in the ' Bulletin ' (lii. 1931, p. 61) :—

The bird he referred to as having been shot twenty-five years ago was, he regretted to say, only a faded example of the " Bohemian " variety. The other two specimens referred to in the note (only one of which, by the way, was preserved) were undoubtedly referable to *Phasianus t. satscheuensis*.

NOTICES.

The next Meeting of the Club will be held on Wednesday, March 9, 1932, at PAGANI'S RESTAURANT, 42–48 Great Portland Street, W.1. The Dinner at 7 p.m. Members are reminded that this dinner is held conjointly with the Annual Dinner of the B. O. U., and that they are allowed to bring Lady Guests.

The Meeting will be devoted to the exhibition of films and lantern-slides.

Members of the B. O. C. intending to dine should inform the Hon. Secretary, Mr. C. W. Mackworth-Praed, 51 Onslow Gardens, London, S.W.7, and not the Secretary of the Union. This notice is necessary in order that the seating may be arranged beforehand, and failure to let the Secretary know may result in no seat being available.

Agenda.

Two cinematograph films and various slides will be shown.

Bird Room.

7 MAR 1932 PURCHASED

BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB.

[illegible]

No. CCCLVIII.

The three-hundred-and-fifty-third Meeting of the Club was held at Pagani's Restaurant, 42–48 Great Portland Street, W. 1, on Wednesday, March 9, 1932, in conjunction with the Annual Dinner of the British Ornithologists' Union.

Mr. W. L. Sclater, the President of the B. O. U., took the Chair during the Dinner, and Major S. S. Flower, Chairman of the Club, during the subsequent proceedings.

Members of the B. O. C. present:—Miss C. M. Acland; W. B. Alexander; W. Shore Baily; E. C. Stuart Baker; D. A. Bannerman; F. J. F. Barrington; Miss M. G. S. Best; Miss R. Blezard; H. B. Booth; A. W. Boyd; Sir J. Rose Bradford; G. Brown; A. L. Butler; A. Buxton; Hon. G. L. Charteris; Sir Percy Z. Cox; Lt.-Col. A. Delmé-Radcliffe; A. B. Duncan; W. B. Duncan; A. H. Evans; A. Ezra; Miss J. M. Ferrier; K. Fisher; Hon. M. Hachisuka; B. G. Harrison; Dr. J. M. Harrison; R. E. Heath; Dr. K. Jordan; Rev. F. C. R. Jourdain; N. B. Kinnear; Miss E. P. Leach; Dr. G. Carmichael Low (*Editor*); Dr. N. S. Lucas; J. M. D. Mackenzie; C. W. Mackworth-Praed (*Hon. Sec. & Treas.*);

J. H. McNeile ; Lt.-Col. H. A. Magrath ; Dr. P. H. Manson-Bahr ; G. M. Mathews ; Dr. W. N. May ; E. G. B. Meade-Waldo ; Mrs. D. Micholls ; Mrs. C. D. Murton ; J. L. Chaworth Musters ; B. B. Osmaston ; F. R. Ratcliffe ; B. B. Rivière ; D. Seth-Smith ; Major M. H. Simonds ; Major A. G. L. Sladen ; Col. R. Sparrow ; C. G. Talbot-Ponsonby ; Marquess of Tavistock ; A. Landsborough Thomson ; Dr. C. B. Ticehurst ; B. W. Tucker ; Miss E. L. Turner ; Capt. A. Urquhart ; V. O. Williams ; H. F. Witherby ; C. R. Wood ; W. H. Workman.

Members of the B. O. U. present :—C. G. Bird ; Mrs. M. D. Brindley ; Dr. P. A. Buxton ; R. A. H. Coombes ; C. T. Dalgety ; F. H. Edmondson ; Miss E. M. Godman ; Miss A. Hibbert-Ware ; Miss F. J. Howell ; Miss E. M. Knobel ; Mrs. M. L. Lemon ; Miss C. E. Longfield ; Dr. T. G. Longstaff ; Mrs. P. E. Mackenzie ; Mrs. P. Nichols ; Lt.-Col. W. A. Payn ; Miss D. T. Raikes ; W. E. Renaut ; H. W. Robinson ; Sir M. Seton ; Miss E. C. Sharp ; Col. C. W. Smeed ; I. M. Thomson ; Capt. L. R. Waud.

Guests present :—Mrs. Shore Baily ; Miss Shore Baily ; Mrs. E. C. Stuart Baker ; Mrs. F. G. Bird ; D. van O. Bruyn ; Miss Bury ; M. Campbell ; Miss L. Charteris ; Col. J. B. Cole ; Mrs. J. B. Cole ; H. W. Farmer ; Mrs. S. Flower ; Capt. H. A. Gilbert ; Mrs. Gilbert ; Miss A. Godman ; C. E. Godman ; P. A. D. Hollom ; Hon. H. Home ; Miss Hulse ; Mrs. Izacke ; Col. R. P. Jordan ; V. P. Leach ; Miss M. Lees ; Mrs. G. Carmichael Low ; Mrs. Lucas ; Miss B. S. Lynes ; Major Mackenzie ; Mrs. McKittrick ; Mrs. C. W. Mackworth-Praed ; Mrs. McNeile ; T. J. Mavrogordato ; Miss J. M. May ; M. R. Monro ; G. Morris ; R. C. Murphy ; P. Nichols ; Mrs. B. B. Osmaston ; G. H. W. Pakenham ; Hon. Mrs. J. M. Ridley ; Mrs. Rivière ; Mrs. W. L. Sclater ; H. M. Scott ; Miss R. M. Seth-Smith ; Lady Seton ; C. M. Simonds ; Mrs. A. G. L. Sladen ; Miss P. Sladen ; J. K. Taylor ; Mrs. A. L. Thomson ; Mrs. B. W. Tucker ; Mrs. Vrieben ; N. L. White ; Mrs. Witherby ; G. K. Yeates.

And eight others, making a total of 150, probably a record attendance.

The programme for the meeting consisted of two films of bird life and a series of lantern-slides.

Mr. C. T. Dalgety showed a very interesting film of a trip to Spitsbergen. This, in addition to showing the characteristics of the locality, depicted the following birds at their nests—the Little Auk (*Alle alle*), the Brent Goose (*Branta bernicla bernicla*), the Red-throated Diver (*Colymbus stellatus*), the Ivory Gull (*Pagophila eburnea*), and, rarest of all, the Knot (*Calidrus canutus canutus*), a new record. The latter was shown very clearly, coming and going to the nest and sitting on it.

The Hon. Guy Charteris showed a series of slides from Hungary. The photographs were taken in July 1930 by Mr. Arthur Brook. The following birds were shown :—

The Barred Warbler (*Sylvia nisoria nisoria*), the Tree-Sparrow (*Passer montanus montanus*), the Ortolan Bunting (*Emberiza hortulana*), the Kentish Plover (*Charadrius alexandrinus alexandrinus*), the White Stork (*Ciconia ciconia ciconia*) on its nest, the Lesser Grey Shrike (*Lanius minor*) and the Little Crake (*Porzana parva*) ; also a further series, from Lake Bolaton, comprising the Night-Heron (*Nycticorax nycticorax nycticorax*), the Squacco Heron (*Ardeola ralloides*), the Glossy Ibis (*Plegadis falcinellus falcinellus*), the Spoonbill (*Platalea leucorodia leucorodia*), the Penduline Tit (*Remiza pendulina*), the Great White Heron (*Egretta alba alba*), the Hoopoe (*Upupa epops epops*) ; and a nest of a Raven (*Corvus corax corax*) in Wales, built on a ladder, closed the very interesting series.

Mr. Anthony Buxton showed a series of slides and a cinematograph film of birds round Geneva. Among these were the Red-backed Shrike (*Lanius collurio collurio*), the Great Grey Shrike (*Lanus excubitor excubitor*), the nest of a Woodchat Shrike (*Lanius senator senator*) in a pear-tree, with the bird coming and going, and the Golden Oriole (*Oriolus oriolus oriolus*) at its nest. The males of the latter come on April 28, the females following a week later ; the nest is generally

in an oak-tree. Mr. Buxton also showed a Grey-headed Green Woodpecker (*Picus canus canus*), a charming series of a Hoopoe (*Upupa epops epops*) feeding its young, and, finally, an extraordinarily interesting film of the Honey-Buzzard (*Pernis apivorus apivorus*) at its nest, also feeding its young.

The Hon. M. Hachisuka sent the two following descriptions of new birds from Borneo and the Philippine Islands :—

In revising *Rhinomyias ruficauda* from Borneo and the Philippines I have come across two male specimens from Mt. Dulit and Mt. Kalulong, both in British Borneo, differing from specimens collected at the same time of the year from Kina Balu.

It seems that Mr. F. N. Chasen of Singapore has made no comments on this bird, and I therefore venture to name it

Rhinomyias ruficauda isola, subsp. nov.

Upper parts similar to *Rhinomyias ruficrissa*, but having the rufous tint stronger, which is more noticeable on the outer web of the primaries. Under parts darker throughout ; throat yellowish-buff instead of dirty white as in *ruficrissa* ; breast and flanks of a deeper olive-brown.

Type.—In the American Museum of Natural History, New York (ex Lord Rothschild's collection), collected by Charles Hose at 3500 feet on Mt. Dulit.

Remarks.—The present species is probably not found at an altitude of higher than 3500 feet, and is replaced by a distinct species, *Rhinomyias gularis*, in Kina Balu.

Rhinomyias ruficauda basilanica, subsp. nov.

Five specimens of the present race from Basilan, preserved in the British Museum and in the Rothschild Collection in the American Museum of Natural History, New York, are easily distinguished in having a bluish-grey wash on the throat, breast and face, instead of buffish-brown ; it is particularly noticeable on the lores and ear-coverts.

Type.—In the British Museum. ♂, collected in Basilan by A. H. Everett in June 1878. Brit. Mus. Reg. no. 1889.12.30. 1387.

Mr. David Bannerman sent the description of a new race of Brown-rumped Bunting from Gambia, which he proposed to name

Emberiza affinis gambiensis, subsp. nov.

Differs from *Emberiza affinis nigeriæ* in its considerably greyer and paler upper surface, in the streak down the middle of the crown being tinged with buff rather than pure white, and in its rather smaller size.

Measurements.—Wing of four specimens 67–71 mm. (13 specimens of *E. a. nigeriæ* have wings of 70–73 mm.).

Distribution.—Gambia, West Africa.

Type.—♂, Brit. Mus. Reg. no. 1929.2.18.155. Old Nokunda, Gambia, January 22, 1929. W. P. Lowe Coll.

Remarks.—The distinctiveness of this race was discovered by Mr. H. B. Usher, of the Bird Room staff, who drew my attention to it. Five skins examined.

NOTICES.

The next Meeting of the Club will be held on Wednesday, April 13, 1932, at PAGANI'S RESTAURANT, 42–48 Great Portland Street, W. 1. The Dinner at 7 p.m.

Members intending to dine are requested to inform the Hon. Secretary, Mr. C. W. Mackworth-Praed, 51 Onslow Gardens, London, S.W. 7.

Members who intend to make any communication at the next Meeting of the Club should give notice, as early as possible, to the Editor, Dr. G. Carmichael Low, 56 Brook Street, Grosvenor Square, W. 3, so that the titles of their contributions may appear on the Agenda List. All MSS. for publication in the 'Bulletin' must be given to the Editor before or at the Meeting.

Agenda.

1. Mr. E. C. Stuart Baker will read a paper and give a demonstration upon the need of evolution in the Cuckoo's egg.
2. Mr. P. F. Bunyard will read a short paper on the breeding of the Solitary Sandpiper in Labrador, and will exhibit a series of its eggs and make remarks upon them.

BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB.

No. CCCLIX.

The three-hundred-and-fifty-fourth Meeting of the Club was held at Pagani's Restaurant, 42–48 Great Portland Street, W. 1, on Wednesday, April 13, 1932.

Chairman : Mr. W. L. Sclater.

Members present :—W. Shore Baily ; D. A. Bannerman ; F. J. F. Barrington ; Miss M. G. S. Best ; S. Boorman ; Sir J. Rose Bradford ; P. F. Bunyard ; A. L. Butler ; Hon. G. L. Charteris ; Maj.-Gen. Sir P. Z. Cox ; Lt.-Col. A. Delmé-Radcliffe ; Miss J. M. Ferrier ; B. G. Harrison ; Dr. J. M. Harrison ; R. E. Heath ; Dr. K. Jordan ; Miss E. P. Leach ; Dr. G. Carmichael Low (*Editor*) ; N. S. Lucas ; C. W. Mackworth-Praed (*Hon. Sec. & Treas.*) ; Lt.-Col. H. A. F. Magrath ; Dr. P. H. Manson-Bahr ; G. M. Mathews ; Mrs. D. Micholls ; T. H. Newman ; C. Oldham ; C. B. Rickett ; Lord Rothschild ; D. Seth-Smith ; Major A. G. L. Sladen ; Dr. G. Landsborough Thomson ; Miss E. L. Turner ; H. F. Witherby ; C. R. Wood ; C. de Worms.

Guests of the Club :—Dr. and Mrs. R. Cushman Murphy (New York).

Guests :—Lord Cawdor ; H. A. Gilbert ; R. S. Jenyns ; A. Micholls ; Mrs. W. L. Sclater.

Ornithology of the Humboldt Current.

Dr. Robert Cushman Murphy, of the American Museum of Natural History, New York, showed about fifty coloured lantern-slides from photographs made by him during his visits to the coast and islands of Peru in 1919–20 and 1924–25. They served to illustrate his remarks upon the climatic and oceanographic conditions that prevail in this arid littoral region, and upon the amazing abundance of marine bird-life which is dependent upon the peculiar environment.

Sea-birds and other higher oceanic animals take their sustenance directly or indirectly from unicellular organisms. In particular, the diatomaceous plant-cells are the ultimate pasture of the sea. These plant-forms feed and grow through the absorption of nitrogenous and other food-substances from the water. The plants are eaten by planktonic crustaceans and by such fishes as anchovies and herrings which, in turn, become the prey of larger fishes, seals, porpoises, and birds.

For various physico-chemical reasons, cold ocean waters are richer in dissolved food-substances, derived in large part from organic decay, than are waters of high temperature. That is why we find the greatest abundance of oceanic life in cool temperate or sub-polar regions, even though the variety of life (*i. e.*, number of species) may be far greater in an equal volume of tropical ocean water.

The western coasts of the continents, especially in the southern hemisphere, are bathed by cool ocean currents which proceed from the direction of the poles. Of all these, the most pronounced is the Humboldt Current, which flows along the Pacific shores of South America from central Chile to the westernmost projection of the continent in northern Peru. The low temperature of the current is due not to the actual transportation of southern surface-water toward the equator, but rather to a continual upwelling of water from middle depths near the shore. For such reasons, temperatures close to 60° F. prevail along the Peruvian coast not only regardless of season, but also largely regardless of latitude. The annual mean in southern Peru is very slightly different from that twelve hundred miles to the north.

The stage is therefore set for an extremely rich marine life in the Humboldt Current and, moreover, for an environment which is equable without parallel, assuring a constant food-supply for vast flocks of sea-birds. Furthermore, some forty clusters of islets on the coastal shelf provide safe and convenient breeding grounds for the birds.

These arid bits of rock, only one of which is as much as seven miles in length, are the famous Peruvian guano islands. They were worked moderately by the ancient people of Peru, and until the middle of the last century they were covered by beds of sun-baked bird-droppings to a thickness of 125 feet or more. The old deposits have disappeared through flagrant exploitation, but to-day conservational methods are in force, and the annual supply of guano has increased from ten or fifteen thousand tons a score of years ago to 240,000 in 1929. Guano is the best of all fertilizers. It is worth about £20 per ton, and, weight for weight, it is thirty-three times as effective as farmyard manure. In the rehabilitation of the supply the Peruvians have developed the largest industry based wholly upon the conservation of wild animals.

The Humboldt Current is a narrow oceanic stream. If one goes off shore 60 or 70 miles the surface-temperatures become those of the tropical Pacific in general, namely, close to 80° F. Therefore the fauna of the Current, both visible and invisible, is mainly confined to a narrow tongue of ocean practically within sight of the mountainous coast. Off shore one encounters flying fish, tropic birds, and equatorial Boobies and Terns. But within the Current the fauna is highly specialized, and has mainly a subantarctic aspect. Thus a Penguin (*Spheniscus humboldtii*) breeds all along the coast to lat. 6° S., and, through the same influences, another Penguin (*Spheniscus mendiculus*) has reached the equator at the Galapagos Islands. The subantarctic Dominican or Kelp Gull (*Larus dominicanus*) is an even more remarkable invader, for it finds centres of maximum abundance, as a nesting bird, at localities so utterly unlike as the Strait of Magellan and Lobos de Tierra Island (lat. 6° 30′ S.). Many other birds of the far south, as well as sea-lions and other

organisms, might be cited to illustrate the same remarkable conditions of distribution.

The nesting birds of the guano islands comprise only about thirty species and, with the exception of Vultures, a Hawk or two, and an Oven-bird (*Cinclodes taczanowskii*), they are all sea-fowl. Some of them, such as the Inca Tern (*Larosterna inca*), are extraordinarily distinct from their nearest relatives, but in most instances the endemic forms more clearly exhibit their systematic kinships and probable geographic origins.

The four species which are *par excellence* the guano birds are especially interesting. These are all Steganopodes, comprising two Gannets, one Pelican, and one Cormorant. The least in commercial importance is the tropical Blue-footed Booby (*Sula nebouxi*), which, within the Peruvian region, nests only on the Lobos Islands, near the northern end of the Humboldt Current. Even a casual observer can hardly fail to notice how rapidly this species disappears when a southbound steamer enters the cooler ocean water south of Point Pariñas.

The third in importance is the Peruvian Pelican (*Pelecanus thagus*), endemic in the Humboldt Current, but clearly related to the Brown Pelican of the American tropics. It once bred in great numbers at most or all of the guano islands, and it was protected and venerated by the Incas, but its principal nesting ground is now confined to Lobos de Afuera.

To proceed in reverse order, the second in importance of the guano birds is the Peruvian Booby, or "Piquero" (*Sula variegata*), the most abundant bird of the entire Humboldt Current region, and, perhaps, the most spectacular in its appearance, nesting habits, and manner of feeding. Flocks of tens or hundreds of thousands may often be seen plunging like hailstones into the sea. The "Piquero" breeds chiefly upon the ledges and spires of the islets, so that much of its guano is lost. Its relationships are undoubtedly tropical, but it is a highly distinct endemic species. Numerous records of its occurrence outside the Humboldt Current region, as at the Galapagos Islands, have proved erroneous.

The Peruvian Cormorant, or "Guanay" (*Phalacrocorax*

bougainvillii), is not only the first of the guano birds, but is probably the most valuable bird in the world. Endemic in the Humboldt Current, it evidently originated in the cold south, for it is related to the subantarctic white-breasted insular Cormorants rather than to those of the northern hemisphere or of the southern continents. Its feeding habits are highly specialized, for it pursues shoaling surface-fish, particularly anchovies and silversides (Atherinidæ), which it hunts by sight from the air.

The Peruvian Cormorants nest on the flat tops of the guano islands in colonies of hundreds of thousands or even millions of birds. One aggregation on the Central Chincha Island was computed by a conservative survey to number not less than six million, old and young. The food required for such a colony would be upwards of a thousand tons of fish per day, which may serve as a final indication of the richness of life in the Humboldt Current.

Mr. P. F. Bunyard read the following paper, "On the Breeding of the Solitary Sandpiper (*Tringa solitaria*) in Labrador":—

On January 11, 1922, the late Mr. A. B. Farn's collection of eggs was sold at Stevens's Rooms (Sale No. 13,344) in which were included many eggs collected by the Rev. W. W. Perrett in Labrador.

Among others I purchased was Lot 768, in which there were two clutches of four each of the Solitary Sandpiper (*Tringa solitaria*), with which were the usual data tickets in Perrett's handwriting. Both clutches were taken by J. Webb, the first in June 1911, at Udjuktok Bay, near Nain, Labrador, from an old nest overhanging a pond, the second in June 1917, at the same place. On the data ticket for the first clutch there is a note to the effect that the parent bird was well known to the collector, who brought in a dead bird in 1912 as a specimen. Unfortunately no day is given, but in one clutch incubation had commenced and in the other it was advanced; it is not stated if the 1917 clutch was taken from an old nest.

On April 12, 1922, I exhibited the two clutches at the Club, and made a carefully guarded statement to the effect that,

so far as I was aware, Labrador was a new breeding locality for *Tringa solitaria* (Bull. B. O. C. xlii. 1922, p. 127).

When I received my copy of 'Life Histories of North American Shore Birds: Order Limicolæ (Part 2),' by Arthur Cleveland Bent, I found that Labrador was not given as a breeding locality for the Solitary Sandpiper (p. 9). I was at the time in correspondence with the author, and called his attention to what I thought was merely an omission, informing him that I had compared the eggs with a series from Alberta, and that there was no question as to their identity.

On November 12, 1931, I received a communication from Mr. Bent in which he said: "In regard to your eggs of the Solitary Sandpiper, obtained from the Rev. Perrett, I very much doubt if they are authentic. Some time ago I bought his collection, and in it were some eggs which he called this species, but which were unmistakably Spotted Sandpipers' eggs, and entirely unlike any eggs we have of the Solitary."

I was not altogether surprised at this reply, because my own experience of Perrett's eggs had been somewhat similar; but I was amused that I had not been given credit for knowing the difference between the eggs of the Solitary Sandpiper (*Tringa solitaria*) and Spotted Sandpiper (*Tringa macularia*). However, I was determined, if possible, to convince my correspondent of the authenticity of these eggs, so my daughter accordingly made a water-colour drawing of one egg from each clutch, which I sent with a covering letter.

On February 7, 1932, I received a reply from Mr. Bent, in which he said: "I have your interesting letter of January 24, with enclosures. First, let me thank you for the beautiful coloured drawing of the Solitary Sandpiper's eggs, made by your talented daughter. This is a fine piece of work, and undoubtedly a faithful reproduction of the eggs. I am very glad to have it, and shall treasure it highly, as you ask me to keep it. This, and the copies of the data slips received from Mr. Perrett, are convincing evidence that this species breeds in Labrador."

It is highly satisfactory to have definitely established the record, as Labrador is probably the most easterly breeding

locality for the Solitary Sandpiper and, apparently, for the Eastern form (*Tringa solitaria solitaria*), to which our British records belong. The distribution for the Western form (*Tringa solitaria cinnamomea*) is western North America.

By far the best description of the eggs of the Solitary Sandpiper is to be found in Bent's 'Life Histories of North American Shore Birds.' In English literature, owing, no doubt, to the scarcity of material avaliable at the time, the descriptions are inadequate, and do not do justice to these eggs.

The first eggs to reach this country, I believe, were received by the late Major F. W. Proctor and Mr. J. M. Goodall, and I saw them in the former's collection. Two of these are figured by Dresser in 'Eggs of the Birds of Europe,' ii. pl. 86, figs. 18 and 19, and four eggs representing the two known forms are also well figured in 'The Ibis,' October 1907, pl. xi. figs. 1–4.

[Clutches from Labrador and from the muskeg country of Alberta were exhibited, with eggs of the Wood-Sandpiper (*Tringa glareola*) for comparison.] It will be seen that there is a family likeness between the eggs of the Old and New World forms, neither of which bears the slightest resemblance to those of the Green Sandpiper (*Tringa ocrophus*); neither do they show any affinity to those of the Spotted Sandpiper (*Tringa macularia*).

Tringa solitaria eggs are much smaller than those of *T. glareola*, the greenish-white ground of the former being on the average much paler than that of the latter. The buff-ground form, which is much the rarer with either species, varies in shade even in a single clutch. There is a great similarity in the markings, and in both cases there is a tendency for the spots to become confluent about the greater axis, especially at the large ends, where caps are sometimes formed. The markings when smaller are more evenly distributed.

As the eggs of the Wood-Sandpiper are the only eggs on the British List with which those of the Solitary Sandpiper can be confused, I have made a comparative study of those of the two species.

Weights and Measurements of Eight Eggs of *Tringa solitaria* from Labrador.

	Weights.	*Measurements.*
Clutch 2072	632 mg.	36·5×25 mm.
	535 „	38 ×25·3 „
	617 „	36·2×25 „
	582 „	35·8×25·3 „
Clutch 2073	567 „	37 ×25 „
	565 „	36·4×25 „
	590 „	36·8×25 „
	545 „	36·2×25·8 „
Average	579 mg.	36·6×25·2 mm.

Comparative Systematic Synopsis.

Ground-colour.

T. solitaria.	*T. glareola.*
Pale greenish-white, pale buff, cream-buff.	Pale olive-green, brownish-buff, greenish-buff to pale greenish-white.

Colour of Superimposed Markings.

Brownish-black, reddish-brown.	Brownish-black, reddish-brown (not so rich or bright as in *T. solitaria* eggs).

Underlying Markings.

Ash-grey, grey tinged mauve, conspicuous.	Greyish-brown, pale grey less conspicuous.

Measurements.

	mm.		mm.
Average, 45 eggs	36·5×23·3	Average, 100 eggs	38·3×26·4
Max.	38·8×26	Max.	42×28
Min.	34·1×25·5	Min.	35·5×25
Average, 68 eggs	36× 25·5		
Bent, 'Life Histories of North American Shore Birds.'		'A Practical Hand Book of British Birds.'	

Weights.

Average, 45 eggs .... 602 mg.	Average, 17 eggs .. 638 mg. (*Rey*).
Max. ..... 688 „	
Min. ..... 525 „	

Granulation of Shell.

No perceptible difference.

Slight gloss to mat.	Show rather more gloss.

Shape.

Ovate pyriform, showing practically no difference beyond that caused by the size.

Date.

May 20 to June 6 (Alberta).	Last week May to early June (Europe). 'A Practical Hand Book of British Birds.'
June (Labrador).	June 18 (Siberia) (*Haviland*).

The weights and measurements for 27 eggs of *Tringa solitaria* given in 'The Ibis' for October 1907, p. 518, and those given in 'A Practical Hand Book of British Birds,' ii. part 2, 1922, p. 619, are obviously for the same eggs, and are for those which Mr. Evan Thomson collected for Mr. Walter Raine.

The minimum given, *i. e.*, 33·7×23·8 mm., is probably for an egg from a clutch of very small eggs; my minimum is 34·1×25·5. The inclusion of these eggs appears to have upset the average for the 27 eggs, 35·7×25·4 mm., my average for 45 eggs being 36·5×23·3 mm., this including the eight eggs from Labrador, sixteen from the Massey collection (all Alberta), and 21 from my own collection (all Alberta).

The weight, 367 mg., given in 'The Ibis' cannot possibly be correct, my average weight for 45 eggs being 602 mg., a very big difference.

In 'A Practical Hand Book of British Birds' the clutch for *T. solitaria* is given as four, rarely five, but Professor Rowan informs me that completed clutches of three frequently occur.

The breeding habits of the Solitary Sandpiper are by now well known to most ornithologists. The habit of using the old nests of other birds was suspected, but not definitely established until 1903 by Mr. Evan Thomson. For the most exhaustive account Bent's work should be consulted.

At present there is no evidence to prove that the Solitary Sandpiper ever nests on the ground, and eggs found there and attributed to it have now been proved to have belonged to other species. Mr. Helge Lilliestierna found the Green Sandpiper (*Tringa ocrophus*) nesting on the ground in Lapland. The Wood-Sandpiper (*Tringa glareola*) also uses both the ground and old nests, and I have personally found the Common Sandpiper (*Tringa hypoleucos*) utilizing the old nest of the

Ring-Ouzel (*Turdus t. torquatus*) in Westmorland in 1899. It appears that this semi-parasitic habit has not been perfected to the same extent in Europe as in America, and the habit has probably been evolved on account of the abundance of water in the muskegs at the breeding season, or the presence of vermin on the ground.

The Rev. F. C. R. Jourdain sent the following note :—

Dr. A. von Jordans, in his " Vogelfauna Mallorcas " (Falco, 1914, p. 115), states that Saunders writes in his Catalogue : " There are at least two nests [of *Haliœëtus albicilla*] in the Balearic Isles, of which one, on a precipice in the islet of Dragonera, has existed for centuries." He adds that this note is certainly due to confusion with *Pandion haliœtus*. Saunders published two lists of the Birds of Southern Spain, one in ' The Ibis ' for 1871 and one in the Bull. de la Soc. Zool. de France, 1876–1877. In both lists the passage quoted occurs under *Pandion*, and not under *Haliœëtus albicilla* at all !

The error, once started on its career, has been repeated again and again. Captain Munn (Ibis, 1921, p. 700) merely states that von Jordans includes *H. albicilla* in the Mallorcan fauna on the authority of von Homeyer and Howard Saunders. Von Jordans (Nov. Zool. xxxiv. 1928, p. 305) repeats his statements of 1914.

Captain P. W. Munn, in his latest account of the Balearic avifauna (Nov. Zool. xxxvii. 1931, p. 98), relying on von Jordans, gives Saunders as the authority for the statement that there were at least two nests in the Balearic Isles, one being on Dragonera, and adds that " it does not now breed there, nor is there any recent record of its occurrence even casually."

The sole authority for the occurrence of this species in the Balearic Isles is the statement of von Homeyer that on May 9, 1861, he saw three immature birds near Dragonera, but had no reason to suppose that breeding had taken place there (J. f. Ornith. 1862, p. 249). In the absence of any confirmatory evidence, and in view of the presence of several other large raptorial species (*Ægypius monachus*, *Aquila chrysaëtos*, *A. heliaca*, etc.), it seems desirable that this species should be relegated to square brackets in the Mallorcan list.

The Rev. F. C. R. Jourdain also sent the following note on the breeding of the Garganey in Essex :—

In an article on the breeding of the Garganey in Essex (*antea*, p. 99) Mr. P. F. Bunyard states that in his opinion the spread of the Garganey is due to the War, " birds having been driven from their usual breeding haunts on the Continent in much the same way as the Sandwich Tern (*Sterna s. sandvicensis*), when breeding colonies were established for the first time on the East Coast."

A much more natural explanation of the increase of the Garganey is that it is due to the breeding of this species in semi-confinement on ornamental waters. The greater part of the increase also took place after the end of the War. As regards the Sandwich Tern, the statement in the ' Bulletin ' is completely disproved by the fact that the War ended in November 1918, while the first nest was found in Norfolk in 1920, and it did not breed in any numbers till 1922, four years after the War had ended ! Up to the end of the War well over 1000 pairs bred annually on the Farnes. After Mr. Paynter's death wholesale raiding took place, and at one time the Terns were driven away from the Farnes and established themselves on the Norfolk coast. Now that protection has been resumed on the Farnes, the Sandwich Terns have returned, but the Norfolk colonies are still occupied, though the numbers vary. There is no evidence of colonization from the Continent, nor have the great colonies in Holland and Germany been disturbed in any way during the period in question.

Mr. Gregory M. Mathews sent the following note :—

Fregettornis grallaria tristanensis, subsp. nov.

Differs from *Fregettornis g. grallaria* in not being so blackish-brown above ; it has a more bluish-brown general colour above.

Measurements.—Wing 160 ; culmen 14 ; tarsus 38 ; middle toe and claw 24 ; tail 71 mm.

Distribution.—Tristan da Cunha Group.

Type.—In the Scottish Museum, Edinburgh. Taken on Inaccessible Island on April 28, 1923, where it is said to breed.

Remarks.—What is the connection between Juan Fernandez Island in the Pacific Ocean and Tristan da Cunha in the Atlantic ? This is the second bird that up till now has been considered as occurring nowhere outside the Pacific (*cf. antea*, p. 63, Dec. 30, 1931, where *Pterodroma externa tristani* is described).

NOTICES.

The next Meeting of the Club will be held on Wednesday, May 11, 1932, at PAGANI'S RESTAURANT, 42–48 Great Portland Street, W. 1. The Dinner at 7 p.m.

Members intending to dine are requested to inform the Hon. Secretary, Mr. C. W. Mackworth-Praed, 51 Onslow Gardens, London, S.W. 7.

Members who intend to make any communication at the next Meeting of the Club should give notice, as early as possible, to the Editor, Dr. G. Carmichael Low, 86 Brook Street, Grosvenor Square, W. 1, so that the titles of their contributions may appear on the Agenda List. All MSS. for publication in the 'Bulletin' must be given to the Editor before or at the Meeting.

Agenda.

1. Dr. G. Carmichael Low will read a short note on lead-poisoning in Wild Ducks in Minnesota, U.S.A.
2. The Rev. F. C. R. Jourdain will read a note on the method of recording measurements of Birds' Eggs.

Record Room

PURCHASED

BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB.

No. CCCLX.

The three-hundred-and-fifty-fifth Meeting of the Club was held at Pagani's Restaurant, 42–48 Great Portland Street, W. 1, on Wednesday, May 11, 1932.

Chairman : Mr. W. L. Sclater.

Members present :—Miss C. M. Acland ; F. J. F. Barrington ; A. L. Butler ; Hon. G. L. Charteris ; H. P. O. Cleave ; Maj.-Gen. Sir P. Z. Cox ; Lt.-Col. A. Delmé-Radcliffe ; H. H. Evans ; Col. A. E. Hamerton ; Rev. F. C. R. Jourdain ; N. B. Kinnear ; C. Boden Kloss ; Miss E. P. Leach ; Dr. G. Carmichael Low (*Editor*) ; Dr. P. R. Lowe ; Dr. N. S. Lucas ; T. H. McKittrick, jun. ; C. W. Mackworth-Praed (*Hon. Sec. & Treas.*) ; G. M. Mathews ; T. H. Newman ; C. B. Rickett ; D. Seth-Smith ; B. W. Tucker ; Miss E. L. Turner ; H. M. Wallis ; H. F. Witherby ; C. de Worms.

Guests of the Club :—Dr. and Mrs. R. Cushman Murphy (New York) ; Dr. Charles W. Townsend (U.S.A.) ; E. F. Stead (New Zealand).

Guests :—Miss E. J. Delmé-Radcliffe ; H. J. R. Pease ; H. Tetley.

Dr. G. Carmichael Low read a short note on lead-poisoning in Wild Ducks in the United States of America :—

At the Staff Meeting of the Mayo Clinic, Rochester, Minnesota, on Wednesday, December 23, 1931, Dr. T. B. Magath, of the Section of Clinical Pathology, read a very interesting paper on lead-poisoning in Wild Ducks (Proc. Staff Meetings Mayo Clinic, vi. 1931, pp. 749–752).

At the end of November 1931 large numbers of Ducks were found dying on Bear Lake, south-west of Alberta Lea, Minnesota. The lake that year had reached a very low level, and in most places was not more than two to three feet deep. After the winter Ducks had fed on the lake for a week to ten days, they began to die in large numbers, and it was variously estimated that from 300 to 1000 had succumbed. Dr. Magath and Mr. Larson, the Game Warden, visited the lake and collected some of the dead Ducks, which were taken to the laboratory for observation.

On examination, the birds were found to be emaciated and anæmic, but with no gross lesions ; the gizzard of each Duck, however, contained from ten to seventy pellets of shot, many of which showed evidence of having been ground up. Live affected Ducks were noted to be unable to fly and walked with great difficulty, the birds falling every few steps. Watery green diarrhœa was also present, and as death approached numerous convulsions were evident.

Mallards (*Anas platyrhynchos*) were chiefly affected, but Blue-winged Teal (*Anas discors*), Green-winged Teal (*Anas carolinensis*), and Canvas-backs (*Nyroca valisineria*) also suffered. Post-mortem examinations showed a high degree of anæmia ; microscopic examination of the liver demonstrated cloudy swelling and necrosis, and in the kidneys nephritis. Analyses for lead, conducted by Dr. A. E. Osterberg, revealed the presence of this metal in 1 to 10,000 parts in the bones and in 1 to 2500 in the liver. The diagnosis then was that the birds had died of lead-poisoning as a result of ingested shot, the shot being present in the mud of the lake.

Dr. Alexander Wetmore, in 1919, noted a similar condition in the Bear River delta at the northern end of Great Salt Lake, Utah. From intensive shooting over shallow areas

frequented by Duck the mud becomes full of shot-pellets, and the birds, when probing in the mud, ingest these. Wetmore, for example, by sifting the mud from certain areas in the Great Salt Lake Marsh, obtained from one to twelve shot in each quart. Further, experiments conducted by him showed that a bird does not have to obtain many shots to cause death, as few as six no. 6 shot being fatal. X-ray pictures demonstrate the lead pellets lying in the gizzard.

Dr. Magath states that " in order to understand the action of metallic lead when ingested by a bird one must remember that these animals are equipped with a gizzard the opening of which lies at the top. Solid material, such as pebbles or solid food, must remain in the gizzard until it is completely ground up, and then can overflow from the top. Hence, when a bird ingests a shot it must remain until completely ground up ; thus the birds have an ample opportunity to assimilate a large quantity of lead, whereas in any other vertebrates the entire mass of lead would probably be passed by the bowel."

In view of this he considers that the custom of baiting certain places for shooting is a disastrous one from the standpoint of lead-poisoning, since enormous quantities of shot fall into these places, and then the Ducks obtain them when feeding there. So far no practical suggestion has been presented for handling the situation, and, as the position must become increasingly difficult every year, it forms an interesting problem for solution in the future.

In discussing the question with Dr. R. Cushman Murphy recently he remarked to me that some people were doubtful as to the part the lead pellets actually played, and suggested that the illness might be due to some bacterial cause, a specific enteritis, and the possibility of this should be borne in mind. We must, however, remember that Wetmore conducted actual experiments by feeding lead pellets to birds, and that they died apparently as a result of this.

The symptoms also are not unlike those found in lead-poisoning in man, where one meets with colic, paralysis, convulsions, and other nervous symptoms, a blue line on the gums, anæmia, changes in the urine, and interference in the functions of reproduction. Constipation is usual, but in other

cases attacks of acute and severe diarrhœa also occur. Perhaps some members of the Club might like to discuss the matter and offer suggestions. I see that Dr. Cushman Murphy is present, and I think the members of the Club would like to hear his views on the subject.

Dr. Cushman Murphy said that the subject was one of interest. He knew of a lake on Long Island where pellets had been found in the gizzards of some of the Ducks shot there; but, though this was so, no appearances of lead-poisoning had been noted.

Mr. E. F. Stead said he knew of similar ponds in New Zealand full of shot, with again no epidemic amongst the Ducks.

Mr. F. J. F. Barrington suggested that an analysis of the water would be of interest; a hard water with much lime might account for an absence of symptoms, whereas a soft water might do the reverse.

The Rev. F. C. R. Jourdain said that the depth of the water was also of great importance; if too deep, surface-feeding Ducks would not be able to reach the mud and pick up the pellets. He said he considered the question was already solved by Wetmore's experiments.

Several other members took part in the discussion.

The Rev. F. C. R. Jourdain called attention to the fact that in the measurements of series of eggs recently published in the 'Bulletin,' in addition to the average size of the whole series one maximum and one minimum only has usually been given. It does, of course, happen occasionally, but very rarely, that a single egg contains not only the maximum length but also the maximum breadth, but it is obvious, from a study of the measurements in question, that the maximum given is a compound of the greatest length of one egg and the greatest breadth of another in at any rate the great majority

of cases. Such a figure is a purely imaginary one, and has no existence in nature: and the same thing applies also to the minimum when only one is given.

In all scientific work the two maxima and minima should be quoted; otherwise the measurements given cannot be used in conjunction with the work of other students, and are, in consequence, valueless.

He thought that both maxima and minima should be given in all future communications in the 'Bulletin' dealing with the subject.

[For example. The measurements of 100 eggs of the Dunlin, furnished by the Rev. F. C. R. Jourdain to A. C. Bent for his 'Life Histories of North American Shore Birds,' part 1, 1927, p. 219, average 34·3 by 24·4 mm.; the eggs showing the four extremes measure **38·3** by 25·4, 35 by **25·8**, **31·3** by 23·2, and 32 by **23** mm.—Ed.]

Mr. A. L. Butler exhibited a Humming-bird from the Natural History Museum which did not belong to any known species or fit exactly into any described genus. He preferred, however, not to describe it as a new species, considering it to be more probably a hybrid between *Damophila amabilis* (Gould) and *Amazilia tzacatl* (La Llave), specimens of which he exhibited with it.

Description.—Upper surface as in *D. amabilis*, to which it seems nearest, with the same glittering green crown, but having the bill entirely pale reddish-brown (apparently coral-red in life) and dusky only at the tip, instead of having the maxilla black as in *Damophila*, and having the rectrices (which are shaped as in *Damophila*, but are rather broader) entirely bronze-green, strongly washed, except at the tips, with coppery red, instead of having the outer rectrices steel-blue. Sides of the head glittering green; throat and breast glittering bluish-green, the blue wash most pronounced, and showing, in some lights, a violet tinge on the breast, where in *Damophila* there is a violet-blue patch, contrasting with the green throat; lower breast and flanks bronze-green, abdomen brownish-grey, under tail-coverts bronzy grey, with pale brownish-grey margins.

Measurements (compared with those of the presumed parent species) :—

	Hybrid ?	*D. amabilis.*	*A. tzacatl.*
Bill	18	17–18	18–19 mm.
Wing	55	55–56	55–57 ,,
Tail	31	33	30–34 ,,

Mons. Berlioz, whose attention Mr. Butler had called to this bird, agreed in considering it a hybrid, with *D. amabilis* as one parent, and it was his suggestion that the red maxilla, the broader tail-feathers with their reddish-bronze wash, and the greener breast would seem to indicate *A. tzacatl* as probably being the other.

Mr. Butler had made sure that the bird, an old Bogota trade-skin, had not been made up in any way by relaxing it in water, turning it inside out, and re-making the skin.

Mr. Butler also exhibited, from his own collection, another undescribed Humming-bird, which he considered to be the female of a *Timolia*, of which genus the females had hitherto remained unknown. Indeed, the birds of this genus were among the rarest of all the Trochilidæ, only six specimens, so far as he knew, being in collections. These were all males, and appeared to represent four distinct species :—

Timolia lerchi (Mulsant & Verreaux), of which three examples were known, skins of Bogota make. One of these, which he had obtained from the collection of the late Mons. Gounelle, Mr. Butler also showed. The type and the specimen, formerly in Lord Rothschild's collection (the type of *Agyrtria tenebrosa* Hartert), were in New York.

Timolia chlorocephala (Bourcier). Known only from the type in the British Museum, a skin of Rio make.

Timolia cæruleo-lavata (Gould). Ditto.

Timolia scapulata (Gould). Type in the British Museum, from Oyapoc, French Guiana, also still unique.

The bird now described is a skin of the Rio style, and was found, unidentified, among some Brazilian species in a collection formed by a Portuguese gentleman, the late Senhor

Monteiro. Some of the skins with it dated back to 1870. It might be the female of *Timolia chlorocephala* or of *T. cæruleolavata*, but it was not possible at present to identify it specifically. The characters of a female of this genus were, however, of considerable interest.

Description.—Above, shining grass-green, including the tail-coverts, and slightly bluish on the head. Tail blue-black, the central rectrices glossed with green, and the two outer pairs tipped (the outermost more widely) with greyish-white. Below, feathers of the chin, mandibular region, and sides of throat white, with tips of glittering emerald-green; in the centre of the throat the green tips are absent, leaving a patch of pure white, just as in *Agyrtria versicolor brevirostris* (Lesson). Remainder of lower surface of the same glittering green, with the concealed bases of the feathers grey, excepting the centre of the abdomen, which is white. Smallest under tail-coverts green, the median ones olive-green with pale edges, the longest white, with a narrow grey shaft-stripe and a small dusky terminal spot.

If the bird is held breast upwards, with its bill towards the light, and viewed from the side, the under-surface turns to blue and the feathers seem to have very narrow greyish edges, giving a scaled appearance.

Bill black, basal half of lower mandible pale. Bill 21; wing 57 mm.

Mr. B. W. Tucker gave a very interesting description of an ornithological expedition to the Camargue, the Delta of the Rhône. He referred to Mr. W. E. Glegg's work in the district, but said there were still many gaps in our knowledge of the avifauna of this region. Many interesting species were encountered, both of passerine and other birds. Warblers and Magpies were common. Of Herons there were the Purple Heron (*Ardea p. purpurea*), the Little Egret (*Egretta g. garzetta*), the Night-Heron (*Nycticorax n. nycticorax*), and the Squacco Heron (*Ardeola ralloides*). Many migrants were passing through—Black-tailed Godwits (*Limosa l. limosa*) Ruffs (*Philomachus pugnax*), Spotted Redshanks (*Tringa erythropus*), etc. Duck were also numerous, a few Gadwall

(*Anas strepera*), Mallards (*Anas platyrhynchos*), Shovelers (*Spatula clypeata*), Wigeon (*Anas penelope*), a few Tufted Duck (*Nyroca fuligula*), and numerous Red-crested Pochards (*Netta rufina*). No Flamingoes were observed.

A full note of all the observations of importance made by the expedition will be published in 'The Ibis.'

Mr. Gregory M. Mathews sent the following description of a new genus and species of Storm-Petrel :—

PEALEORNIS, gen. nov.

Differs from *Pealea* in having the toes and claws much thinner and the tarsus and basal joints of the toes scutellated, not booted. The type is the following :—

Pealeornis maoriana, sp. nov.

Description.—General colour of the upper surface black ; rump and upper tail-coverts white ; tail-feathers black, all but the central pair with white bases ; primaries black, lighter on the inner web towards the base ; coverts black ; middle wing-coverts brownish ; chest blackish-brown ; throat mottled ; abdomen, vent, and sides of the body white ; running down the sides of the body many of the feathers have a dark mark on each side of the shaft ; under wing-lining with a blackish band running round the edge of the wing ; inner wing-linings and axillaries white ; bill, legs, and feet black.

Measurements.—Total length 180 ; culmen 13 ; wing 150–153 ; tail 68 ; tarsus 36 ; middle toe and claw 28 mm.

Distribution.—Banks Peninsula, New Zealand.

Type.—In the British Museum ; Brit. Mus. Reg. no. 1895.2.1.11. Presented by G. C. Steel.

Remarks.—Three specimens examined.

NOTICES.

The next Meeting of the Club (the last of the Session) will be held on Wednesday, June 8, 1932, at PAGANI'S RESTAURANT, 42–48 Great Portland Street, W. 1. The Dinner at 7 p.m.

Members intending to dine are requested to inform the Hon. Secretary, Mr. C. W. Mackworth-Praed, 51 Onslow Gardens, London, S.W. 7.

Members who intend to make any communication at the next Meeting of the Club should give notice, as early as possible, to the Editor, Dr. G. Carmichael Low, 86 Brook Street, Grosvenor Square, W. 1, so that the titles of their contributions may appear on the Agenda List. All MSS. for publication in the 'Bulletin' must be given to the Editor before or at the Meeting.

GENERAL INDEX.

Volume III.

At a recent Committee Meeting of the Club it was resolved to issue a General Index to the 'Bulletin,' covering Volumes XL. to LI. This is now in course of preparation, and should be ready in July. It will be obtainable from the publishers, Messrs. Witherby & Co., 326 High Holborn, W.C. 1, at the price of £1 1s. 0d.

The cost of production of the volume has been a considerable tax upon the funds of the Club, so it is hoped that all members who bind their 'Bulletins' will purchase a copy, as without it the series will be incomplete.

Agenda.

Dr. P. R. Lowe will exhibit a new species of *Fringillaria* and a fossil egg of *Struthio* from North China.

Bird Room

BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB.

No. CCCLXI.

The three-hundred-and-fifty-sixth Meeting of the Club was held at Pagani's Restaurant, 42–48 Great Portland Street, W.1, on Wednesday, June 8, 1932.

Chairman : Major S. S. Flower.

Members present :—W. B. Alexander ; W. Shore Baily ; E. C. Stuart Baker ; F. G. F. Barrington ; P. F. Bunyard ; A. L. Butler ; Maj.-Gen. Sir P. Z. Cox ; Lt.-Col. A. Delmé-Radcliffe ; Miss J. M. Ferrier ; A. G. Glenister ; Hon. M. Hachisuka ; J. R. Hale ; Col. A. E. Hamerton ; Dr. E. Hopkinson ; N. B. Kinnear ; Miss E. P. Leach ; Dr. G. Carmichael Low (*Editor*) ; Dr. P. R. Lowe ; Dr. N. S. Lucas ; T. H. McKittrick, jun. ; C. W. Mackworth-Praed (*Hon. Sec. & Treas.*) ; T. H. Newman ; H. Leybourne Popham ; C. B. Rickett ; Lord Rothschild ; W. L. Sclater ; D. Seth-Smith ; Major M. H. Simonds ; B. W. Tucker ; H. M. Wallis ; H. F. Witherby ; C. de Worms.

Guests of the Club :—Eric Parker ; Lord William Percy ; E. F. Stead.

Guests :—Sir Geoffrey Archer ; J. Wentworth Day ; Miss E. J. Delmé-Radcliffe ; Mrs. Stanley Flower ; E. M. E. Glenister ; Miss E. M. Godman ; Miss Hale ; C. H. Hartley ; Mrs. Mackworth-Praed ; Prof. Dr. S. Matsumura ; W. P. Pycraft ; Mrs. Sclater.

Lord William Percy gave a lecture, illustrated by lantern-slides and a film, on the use of the Powder-down Patches in the Bittern* :—

For centuries (he said) ornithologists have been familiar with the " powder-down " patches on the bodies of the Heron family, but their function has remained wrapped in mystery. It was, indeed, suggested at one time that they possessed luminous properties which assisted the birds in their night fishing, but that was in days when the acceptance of theories without evidence in support of them was more popular than it is to-day. It may be that Herons use their " powder-puffs " for more than one purpose. It is only safe to assert that one member of the family, a Bittern, makes use of hers for so necessary and essential a purpose that it is difficult to see how the bird could survive without it. During the spring of 1932, the particular Bittern here referred to has given a daily, and sometimes " twice daily," exhibition of its use to an interested onlooker, at a distance of seven feet, over a period of several weeks.

It is difficult to keep a Bittern's nest under observation for more than twenty-one days after the young are hatched, as the youngest member of the family will be likely to have left the nest in that time, and subsequent family history is concealed from the human eye by a barrier of reeds, though it may be only a few feet thick.

The nest referred to here was kept under observation throughout almost all the daylight hours, and, with the exception of four occasions upon which a rudd or roach was brought by the female to the nest, the solid diet with which she supplied her young ones consisted solely of eels. Presumably a Bittern catches an eel in a manner similar to that adopted by a Heron, but anyone who has watched a Heron eel hunting is aware that the business is by no means concluded with the catching. The killing is performed by the combination of a variety of methods which can only be comprehensively described as " every variety of ill-treatment."

* [For the account which follows we are much indebted to the Editor of 'Country Life' for kindly permitting us to use extracts from the article published in that Journal on June 18, 1932. This article, which is well illustrated with photographs, should be read by members interested in the subject.—Ed.]

In the end the eel ceases to writhe, and in that condition is, no doubt, less liable to be the cause of internal pangs, but the process has resulted in a serious deterioration of the state of the killer's head and neck, for its feathers are now matted and coated with slime deposited by the eel's body during the periodical shakings to which it has been subjected. Feathers in that condition have lost their efficiency, and must be restored to the clean and "free" condition in which alone they can perform their function.

Invariably, at the close of a day's hunting, and frequently at the morning feeds, the female Bittern returned to the nest in this bedraggled condition, and upon every occasion, as soon as she had ministered to the needs of her family, she set about her business of attending to her toilet. If undisturbed in any way, her routine was fixed and invariable. After the feed some minutes would be spent in breaking reeds, or picking up broken stems and adding them to the nest to counteract the continual subsidence that took place.

Then, standing on the nest, the young beneath her if they felt the need of warmth, she turned her attention to her bedraggled head and neck. A quick movement and her head was buried beneath her shoulders, while the feathers at the base of the neck heaved and shook for ten to thirty-five seconds as she rubbed one side of her head up and down her "powder-puffs." As her head emerged from the first application of the "powder-puff," not only powder, but the actual powder-down also, could be seen clinging to her forehead.

Repeated further application followed, first on one side and then on the other, her head becoming whiter and more dishevelled, and the feathers at the base of the neck protruding more and more after insertion of the head in the "powder-puff." These neck-feathers were always a signal by which the conclusion of her powdering could be foretold, for as soon as she was satisfied with it they relapsed into their normal position, and she sat for all the world like an over-powdered middle-aged lady who had neglected a last glance in the mirror.

The toilet was not yet nearly complete. An interval must be allowed for the powder to do its work, before it could be brushed off, by a vigorous scratching first with one foot

and then the other, leaving the head slightly ruffled but now nearly dry. During this interval she would divide her attention between her young and a general bill-preening of her own plumage. The average time occupied by the whole performance up to this stage was about forty-five minutes, and, absorbing as every moment of it never failed to be, the concluding stages, in the best artistic tradition, were to surpass all else in interest. For now, while her powder had effectually removed the oily eel-slime from the head and neck, it had as effectually relieved them of the natural oil necessary for waterproofing, and so, with tail-coverts vertically raised and oil-gland fully exposed, a most elaborate oiling of her head and neck was to form the spectacular final act, a fitting climax to this astounding toilet.

Leaving the nest, after a final shake out of her plumage, and climbing to the very summit of the reeds, it was her custom to perform this last act in this peculiar situation, impossible to record with a camera. A silhouette against the setting sun, fogged by intervening reeds, seemed the most that could be expected; but at last, as if to make amends for many previous disappointments, she remained at the nest, turned her back to the camera, and for twenty minutes provided an opportunity for a long series of pictures.

In later days the entire performance, with its final act, was repeated more than once in equally favourable conditions; and upon the last occasion of all, after a stay of no less than three hours and fifty minutes at the nest, instead of climbing to her look-out before starting for her usual hunt, she gently settled herself on her two young ones and closed her eyes.

Mr. E. F. Stead gave the following interesting account of the Mutton-birds of New Zealand :—

In the seas around New Zealand there are five different Petrels, which are sometimes referred to as "Mutton-birds"—a name which they get, no doubt, from the fact that their young are used for food. They are :

(1) Neonectris tenuirostris.

This species breeds in great numbers on islands off the southern coasts of Australia, particularly on those in Bass Strait. It is this bird that is referred to as "Mutton-bird"

by Australians. About half a million young are taken every year and preserved for food, while in some cases the eggs are also used for the same purpose. It is interesting to note that the oil from the stomachs of the young birds is now refined and used medicinally, its chief feature being that it is very rich in vitamins, since it may be refined without the application of heat.

This Shearwater is only an occasional visitor to New Zealand, and, so far as I know, does not nest there.

(2) Pterodroma macroptera.

The Grey-faced Petrel occurs in various forms from New Zealand to South Africa, the New Zealand subspecies being *P. m. gouldi*, and having a greyer face than the more westerly races. It breeds on many islands off the coasts of the northern half of the North Island of New Zealand, laying its eggs in early July. The young are able to fly by the end of November, and the old birds then go to sea with them, but return to their burrows again in March and occupy them intermittently until the eggs are laid. The Maoris take the young of this Petrel just before it flies, but only, I think, for immediate use. They do not treat them for preservation for any length of time.

(3) Hemipuffinus carneipes.

The Pink-footed Shearwater nests on many islands from Cook Strait northwards to the Three Kings, laying its eggs in the latter half of October. Both it and the foregoing used to nest on some of the headlands on the North Island, but they have been driven thence by vermin. The Maoris took the young of this bird for food purposes, but, so far as I know, did not cure them for future use.

(4) Pterodroma inexpectata.

The Mottled Petrel in former times nested inland on mountain ranges throughout both the main islands of New Zealand, being especially abundant on some of the ranges and volcanoes in the North Island, where it was taken by the Maoris for food. Curiously enough, I can find no record of its breeding on any of the islands off the coast of the North Island, though it did so in the interior. It has been almost, if not quite, exterminated over the whole of the mainland, though it still

breeds in numbers on the islands off Stewart Island, and the sub-Antarctic islands further south. Up to four or five years ago the Maoris took it from its nesting grounds in the middle of the North Island, but it became so scarce that they ceased going after it. The Petrels' chief enemies on the mainland are the introduced stoats, weasels, and hedgehogs. The Maoris still take some of these birds when mutton-birding off Stewart Island, but mostly for immediate use, not for curing.

(5) Neonectris griseus.

This, the true New Zealand Mutton-bird, nests sparingly on islands off the northern coast, increasing in numbers as one goes south, until it is literally in millions to the south of Foveaux Straits. Formerly it, too, nested on many headlands on the mainland, but is being driven from them to-day by the above-mentioned vermin.

The young of this Shearwater are collected every year and preserved in their own fat by the Maoris and distributed throughout the country for sale as food. The Maoris relish them, and so do many Europeans, for the flesh, though very rich, and slightly "fishy" in flavour, is, nevertheless, quite palatable and tender. It is, indeed, rather like good duckling seasoned with anchovy.

The annual crop of Mutton-birds from Stewart Island and its outlying islets is between two hundred and fifty and three hundred thousand birds, and although this traffic has been going on for a long time, there is no sign of any diminution of the numbers of breeding birds. According to the estimates of people I have spoken to on the subject, about one-third of the young birds are taken from any given area. The islands where the birds breed consist of granite covered by a thick layer of peat, and this is literally honeycombed with burrows.

Enormous numbers of Mutton-birds nest on the Snares and Auckland Islands further south, and these are practically undisturbed by man, as the islands are very rarely visited.

Mr. W. L. Sclater exhibited some new and rare birds obtained by Rear-Admiral Hubert Lynes during his journey through Northern Rhodesia, Belgian Congo, and Angola

in 1930–31. This collection, which contains a number of interesting species, in addition to those here exhibited, was made as a supplement to that of the Cisticolas, which was the primary object of the expedition.

He was invited by Admiral Lynes to examine this collection and name the new races. It is proposed later on to publish in their joint names a fuller account of the journey and the birds obtained, with taxonomic comments and field notes. The most interesting species obtained was undoubtedly

Paludipasser locustella.

Three males and two females were obtained—a pair on October 20 on the edge of a wet grassy plain five miles south of Abercorn, and two males and one female on the wet grassy swamps at the north-eastern corner of Lake Bangweolo on December 2, both in Northern Rhodesia.

These are the first adults of the species that have been yet obtained. It was in June 1908 that Dr. S. A. Neave collected in the same locality two quite young birds, which he described and subsequently figured in 'The Ibis,' forming a new genus for their reception *.

Some years later Dr. J. P. Chapin, of the American Museum, obtained at Faradje, in the Upper Uele District of the northern border of the Belgian Congo, a somewhat similar bird which he named *Paludipasser uelensis* †, and since then Dr. Schouteden's collectors have obtained additional examples of Dr. Chapin's species near Bolobo, on the Lower Uele ‡. These have been examined by Dr. Chapin himself.

As Dr. Neave's young birds are very different from the adults now obtained, and hitherto undescribed, a short description of the male and female is here given.

Male.—Crown and back dark fuscous brown, the former heavily streaked with dusky, the latter, including the inner secondaries, with small white spots or dots, like those of *Lagonosticta*; tail without spots and not edged with carmine, but the lateral upper tail-coverts conspicuously tipped with carmine; wings with the middle and greater coverts and the

* Bull. B. O. C. xxv. 1909, p. 25, and Ibis, 1910, p. 251, pl. iii. and text-fig. 3.

† Bull. Amer. Mus. N. H. xxxv. 1916, p. 24, fig. 2.

‡ Bull. Cercle Zool. Congolais, v. 1929, p. 102, and vii. 1930, p. 45.

outer edges of the primaries, except the two outer ones, washed with pale rather orange carmine; frontal band, sides of the face, including a narrow strip above the eye, ear-coverts, throat, and upper breast bright carmine; rest of the under-parts very dark slate; under wing-coverts whitish, with a slight tinge of yellow on the edge of the wing. Iris light chrome-yellow, bill scarlet, with dark sepia along the culmen; feet pinkish or yellowish brown.

Measurements.—Length (skin) about 87; wing 43, tail 26, culmen 9, tarsus 15 mm. Claw of hind toe longer than the toe itself.

The female resembles the male on the upper-parts, but has no red frontal band; the under-parts from the chin to the centre of the abdomen are dirty white; the flanks and under tail-coverts are black, the former being conspicuously marked with transverse white bands. The soft parts as in the male, but the wing slightly smaller—41–42 mm.

Recently, through the kindness of Dr. Chapin, I have been able to examine an example of *P. uelensis*. This form, which cannot be regarded as more than a subspecies of *P. locustella*, differs from the last-named in the complete absence of the characteristic white spots on the back, and the mottling on the crown is less distinct, otherwise the two forms are very similar.

The new races obtained by Admiral Lynes are as follows :—

Ortygospiza atricollis fuscata, subsp. nov.

Description.—Male: The darkest of all the Quail-Finches hitherto known, with no white spot on the chin or round the eye; the upper-parts black, not brown, with slightly paler edges to the feathers, giving a striped appearance, and thus distinguishing it from *O. a. ansorgei*, to which it seems nearest on the whole; below the throat and chest black, the breast and flanks also black, with narrow bars of white, the bars much narrower than in *O. a. gabonensis*; the cinnamon of the abdomen dark and rich. Iris deep golden yellow; bill scarlet orange, with a little sepia round the nostrils and at the tip; legs brownish flesh.

Measurements.—Length (skin) about 100; wing 55, tail 26, abdomen 9, tarsus 17 mm. The female is smaller, wing 50 mm.;

it is slightly paler above owing to the greater width of the paler edges to the feathers, which, below the throat and chest, as well as on the sides of the face and chest, are dark slaty grey, not black.

Type.—In the British Museum ; a male obtained by Admiral H. Lynes at Kawambwa, Northern Rhodesia, November 6, 1930. Collector's number 1207. Brit. Mus. Reg. no. 1932.6.5.2. There are two other males and one female, obtained at the same place and at the same time.

Remarks.—A very distinct race.

Anthoscopus ansorgei rhodesiæ, subsp. nov.

Description.—Resembling *A. a. ansorgei*, but much less brightly coloured ; the crown with a slight wash of yellow hardly indicated, instead of the conspicuous bright patch in the typical race, the back and wings dull greyish green, not bright grass-green ; under-parts greyish, the throat and upper breast are iron grey, owing to the black bases to the feathers, the lower breast and belly with a pale tawny wash. Iris dark burnt umber ; bill grey, with deep indigo on the culmen and on the terminal part of the keel of the lower mandible ; legs and feet steel blue-grey.

Measurements.—Length (of skin) about 80 ; wing 56, tail 30, tarsus 14, culmen 9 mm.

Type.—In the British Museum ; a male obtained at Mt. Sunzu, near Abercorn, in Northern Rhodesia, at about 6300 feet, on October 18, 1931, by Admiral Hubert Lynes. Collector's number 1105. Brit. Mus. Reg. no. 1932.6.5.3. A female was obtained on the same occasion, and both were shot out of a small flock of five or six in woodland.

Remarks.—Another example of the same race has remained for many years unnamed in the British Museum. It is a male, obtained on the Lofu River, which runs into the southern end of Lake Tanganyika, on August 6, 1908, by Dr. S. A. Neave. It is recorded in his paper on the " Birds of N. Rhodesia " (Ibis, 1910, p. 231) under the name *Anthoscopus parvulus.*

Francolinus coqui lynesi, subsp. nov.

Description.—Resembling most closely the typical race *F. coqui coqui* from Bechuanaland, but with the crown washed with dusky, the black and white bands on the hind neck

narrower and less distinct, and the colour of the upper-parts generally of a richer and darker tone; below, the transverse bands of black are broader and very even and sharply defined, and extend right down to the flanks; the thighs, anal region, and under tail-coverts are a rich buff, with quite narrow but plainly marked black transverse bands. Iris light raw sienna, bill medium sepia, with yellow ochre base; legs and feet yellow ochre; claws medium sepia.

Measurements.—Wing 138, tail 64, tarsus 36, culmen 21 mm.

Type.—In the British Museum; a male with enlarged testes obtained by Admiral H. Lynes at Tenki, 4600 feet, about 170 miles west of Elizabethville, S.E. Belgian Congo, December 24, 1930, in woodland. Collector's number 1372. Brit. Mus. Reg., no. 1932.6.5.4. The bird was calling from the ground and being answered by another male.

Remarks.—There is in the Museum a female, obtained by Dr. S. A. Neave on the Upper Luababa River in 1907 (see Ibis, 1910, p. 84), which should also be undoubtedly referred to this race; it is darker on the head than the typical race, but in other respects not very different.

Compared with the type of the Angolan race, *F. c. angolensis* Rothschild, the Tenki bird has the flanks more distinctly and broadly banded with black. It is, in fact, still more strongly marked than either the typical or the Angolan races, and the buffy abdominal patch is of a distinctly richer shade. It is only the type of *F. c. angolensis* which approaches our bird. Other examples from Angola are not nearly so heavily banded on the flanks, and are nearer the typical South African race.

Dr. Percy R. Lowe forwarded the following description of a new race of the Cape Bunting :—

Fringillaria capensis vincenti, subsp. nov.

Description.—Differs very strikingly from all other subspecies of the *capensis* group in its saturated coloration, and from *F. c. capensis* (in particular) in the following points :—Throat clear white; breast and abdomen darkish slate colour; flanks with tinge of brown, feathers of crissum browner and broadly edged with whitish; mantle, back, and rump dark greyish brown, central dark streaks hardly, if at all, visible;

head darker than the back, with conspicuous pale grey sagittal streak margined on each side with broad streaks of black ; a conspicuous dead white supra-ocular stripe running from base of nostril to the side of the nape, beneath which is a black loral and post-ocular streak ; this again succeeded by a dead white intra-ocular streak, followed by a broad band of black separating it from the white of the throat. Wing : lesser and median coverts rich chestnut, greater coverts only very narrowly edged with chestnut ; primaries dark brown, very narrowly edged with paler brown ; secondaries not edged with chestnut ; axillaries and under wing-coverts ashy grey. Tail-feathers dark uniform brown very faintly edged with ashy ; outer feathers very narrowly edged with pale chestnut.

Measurements.—Wing 81 ; tail 67 mm.

Distribution.—Near Zobrué, Portuguese East Africa, altitude 3500 feet.

Type.—In the British Museum. Zobrué, Portuguese East Africa. April 9, 1932. Presented by Admiral Hubert Lynes, R.N. Brit. Mus. Reg. no. 1932.6.5.1.

Remarks.—This very interesting race represents the first fruits of Admiral Hubert Lynes's Expedition to Portuguese East Africa. It was shot by Mr. Jack Vincent just over the border, and so actually within Nyasaland territory. Mr. Vincent despatched it at once to the Museum, as he was convinced that it represented a very distinct form of the genus *Fringillaria*. As this undoubtedly proves to be the case, it was named, at Admiral Lynes's request, in honour of his collector, Mr. Vincent.

I was at first inclined to regard this form as a distinct species ; but I now feel sure that this would be a mistake, since to do so would conceal its true affinities. In *Fringillaria capensis vincenti* we have, indeed, as it seems to me, the most saturated condition of pigmentation known in the group, and this has resulted, in so far as colour and colour-pattern are concerned, in the evolution of the most finished stage of specification. The difference in coloration between *F. c. vincenti* and other races is, in fact, comparable to the difference between the male and female adult or the adult and immature of the generality of species.

Mr. Gregory M. Mathews sent the following description of a new subspecies of Storm-Petrel :—

Fregetta leucogaster deceptis, subsp. nov.

Description.—Differs from *F. l. leucogaster* (Gould) in its longer wing-measurement, viz., 163–167 mm., whereas typical *leucogaster* measures 152–157 mm.

Distribution.—Waters of New Zealand and in the South Indian Ocean, probably occurring off Western Australia.

Type.—From New Zealand, ex the Whiteley Collection. Now in the American Museum of Natural History.

Remarks.—Typical *F. l. leucogaster* occurs from between Tristan da Cunha and South Africa, and, perhaps, a few degrees east of Cape Agulhas.

Mr. Mathews also sent the following descriptions of some new subspecies of Prions :—

Pseudoprion turtur steadi, subsp. nov.

Description.—Differs from the form inhabiting the South Island of New Zealand in having the bill smooth and shorter ; the wing and toes also are shorter. In the South Island bird the bill is rough and flaked, feet greenish yellow.

Measurements.—South Island bird measures : wing 187 ; culmen 24 ; width of bill 11 ; tail 95 ; tarsus 31 ; middle toe and claw 38 mm. Stewart Island bird : wing 176 ; culmen 22 ; width of bill 10 ; tail 89 ; tarsus 31 ; middle toe and claw 34 mm.

Distribution.—Stewart Island and small islands near ; breeding on Cundy, Woman, and Betsy Islands.

Type.—A female in the British Museum. Collected by Mr. J. C. McLean on October 3, 1911. Iris dark brown ; bill bluish, tubes and culmen black ; legs and feet pale blue, webs brownish black, claws black. On an island off Stewart Island.

Remarks.—Mr. Edgar F. Stead tells me that in his experience of over thirty years a Prion from any one breeding locality does not vary in any appreciable particular from its fellows in that colony. This is, I believe, the experience of all workers in this family.

The South Island bird mentioned above can be called

P. t. oliveri; type from Motunau Island, where it breeds. The type of *P. t. huttoni* measures: wing 175; bill 20 mm. long by 7 wide; tail 90 mm.

Heteroprion desolatus crozeti, subsp. nov.

Description.—Differs from *H. d. desolatus* in having a much wider bill. Iris hazel-brown, legs and toes pale blue, webs pink; bill black and light blue.

Measurements.—Typical *H. d. desolatus* has a bill 27 mm. long by 14 or less wide. The Crozet bird has a bill 31 mm. long by 17 wide; wing 190; tail 88; tarsus 32; middle toe and claw 38 mm.

Type.—In the British Museum. Collected by the 'Discovery' Antarctic Expedition on October 22, 1901. Brit. Mus. Reg. no. 1905.12.30.159.

Remarks.—The bill is not compressed towards the point, the latericorn being quite wide in front of the nostrils.

In South Georgia is a form of *H. d. desolatus*, with a bill intermediate between that of the species and *H. d. crozeti*, which can be called *H. d. georgia*. The bill measures 29 mm. long, width in front of nostrils 11; wing 184; tarsus 35; middle toe and claw 41 mm.

Type.—In the British Museum, from Stromness Bay, South Georgia, South Atlantic; collected on November 26, 1913. Brit. Mus. Reg. no. 1914.3.8.38.

Mr. David Bannerman sent the description of a new race of the Plain Nightjar from French Niger Territory which he proposed to name

Caprimulgus inornatus vinacea-brunneus, subsp. nov.

Description.—Adult ♂: Similar to *C. inornatus inornatus* as regards size and markings, but the whole plumage warm pinkish-brown. This colouring is not exhibited in any of the very large series examined of the typical species, which is well known to have a grey and a cinnamon-rufous colour variety. Unlike the examples of typical *C. i. inornatus* which have hitherto only occurred in West Africa in the winter, the four males collected in the French Niger Territory, on ground

covered with laterite rock, were shot between May 20 and June 5, and had their testes greatly enlarged, as if breeding, pointing to it being a resident race. All the specimens are exactly alike in colouring, which may be likened to the underside of a mushroom.

Mr. G. L. Bates, who collected these specimens, believes with me that they cannot be considered a colour variety in the sense that the grey and cinnamon examples of the Plain Nightjar must unquestionably be.

Distribution.—Tawa (Tahoua) and Tillia, about 100 miles N.N.W. of Tahoua, French Niger Territory, West Africa.

Type.—In the British Museum. ♂ ad., Tawa, French Niger Colony, June 5, 1931. G. L. Bates Coll., no. 10582.

Mr. Bannerman further proposed a name for the Long-tailed Nightjar (*Scotornis climacurus*) which is apparently resident in Sierra Leone. This is a very dark blackish-brown bird, of which specimens were secured by Robin Kemp at Bo in September 1904, a month when the migrants of the pale typical species are breeding in the semi-arid belt further north and are absent from the Savanna.

Mr. Bates first drew attention to this undescribed race in 'The Ibis,' 1927, p. 22, and has again examined the material in the British Museum with me.

Mr. Bannerman proposed to name this race

Scotornis climacurus leoninus, subsp. nov.

Type.—In the British Museum. September. Robin Kemp Coll. Brit. Mus. Reg. no. 1905.1.25.27.

Lieut.-Commander R. R. Graham, R.N., communicated the following letter :—

Dear Dr. Carmichael Low,—

It is possible that some members of the Club might be interested in the following observations which I have made :—

May 25, 1932.—Ship about ten miles from coast between entrances to Moray and Pentland Firths. Weather fine,

with a light N.E. breeze. Several parties of Oyster-catchers, varying in numbers between eight and fifteen birds, approached from landward, circled the ship several times, piping, and then proceeded, till out of sight, on a direct easterly course.

June 1.—Ship about two miles N. of the entrance to Loch Eriboll (between Orkney and Cape Wrath). Moderate easterly breeze, with strata of low cloud from 150–300 feet above the surface. Blue sky above. A party of Oyster-catchers, fifteen strong, passed close to the ship, and disappeared out to sea, steering a steady N.N.W. course.

These flights struck me as rather odd, because there were many of the species nesting in-shore. I wonder how this apparent migration can be explained, and whither the birds were bound.

Another small matter that might interest a few is that the Kingfisher has the front webs of the 3rd, 4th, and 5th primary feathers emarginated, which is not mentioned in Witherby's 'Handbook.' Perhaps it is elsewhere. The emargination, though slight, is undoubtedly there, and causes the formation of three wing-tip slots. I had been puzzled for a long time to account for the lack of slots in this bird, which, according to theory and example, should have them. It was not till I had handled a wing which A. L. Butler kindly sent to me that I found out the truth. As in many other birds, the proximal limit of the emargination coincides with the distal limit of the decorative colouring.

Yours sincerely,
R. R. Graham.

H.M.S. 'Furious,'
c/o G.P.O. London,
June 5, 1932.

Mr. S. A. Buturlin sent the following letter on the name of the Asiatic Golden Eagle :—

To the Editor of the 'Bulletin of the British Ornithologists' Club.'

Dear Sir,—

I see that Dr. C. B. Ticehurst, in No. cccliii. of the Bulletin of the British Ornithologists' Club [lii. 1931, pp. 24–25]

proposes a new name, *Aquila chrysaëtus hodgsoni*, for *A. daphanea* Sewertzow, preoccupied by *A. daphanea*, nomen nudum, of Hodgson.

I wish to protest against this proceeding, as it seems to me to disagree with accepted rules of nomenclature and established precedents. *Nomina nuda* cannot invalidate a name given with description, as they have no nomenclatorial standing whatever, and should be totally disregarded.

The late N. A. Sewertzow has given an excellent description of *Aquila daphanea* in his posthumous work " Études sur les variations d'âge des Aquilinés paléarctiques," etc. (Nouv. Mém. Soc. Imp. Natur. Moscow, 1888, t. xv. livr. 5, p. 190). The fact that he considered Hodgson's name as valid and, therefore, cited Hodgson as author of the name, does not alter the fact that he was the first to give a name and description to this race of the Golden Eagle.

My friend Mr. George P. Dementiev wishes to add his name to this protest.

Yours truly,

S. A. Buturlin,

George P. Dementiev.

Moscow, U.S.S.R.,
6, Bojedomski, 1, log. 32.
June 7, 1932.

NOTICES.

The next Meeting of the Club will be held on Wednesday, October 12, 1932, at PAGANI'S RESTAURANT, 42–48 Great Portland Street, W. 1. The Dinner at 7 p.m.

Members intending to dine are requested to inform the Hon. Secretary, Mr. C. W. Mackworth-Praed, 51 Onslow Gardens, London, S.W. 7.

ANNUAL GENERAL MEETING.

This will also be held at PAGANI'S RESTAURANT on Wednesday, October 12, 1932, at 5.45 p.m. An Agenda and Balance-sheet will be issued in September.

Members who intend to make any communication at the next Meeting of the Club should give notice, as early as possible, to the Editor, Dr. G. Carmichael Low, 86 Brook Street, Grosvenor Square, W. 1, so that the titles of their contributions may appear on the Agenda List. All MSS. for publication in the 'Bulletin' must be given to the Editor before or at the Meeting.

GENERAL INDEX.

Volume III.

At a recent Committee Meeting of the Club it was resolved to issue a General Index to the 'Bulletin,' covering Volumes XL. to LI. This is now in course of preparation, and will be published in July. It can then be obtained from Messrs. Witherby & Co., 326 High Holborn, W.C. 1, at the price of £1 1s. 0d.

The cost of production of the volume has been a considerable tax upon the funds of the Club, so it is hoped that all members who bind their 'Bulletins' will purchase a copy, as without it their series will be incomplete.

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